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Factors Influencing Knowledge, Attitudes, and Practices of Nurses Regarding Pain Management of Hospitalized Children in Babylon Province

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Degree of Philosophy of Doctorate in Nursing

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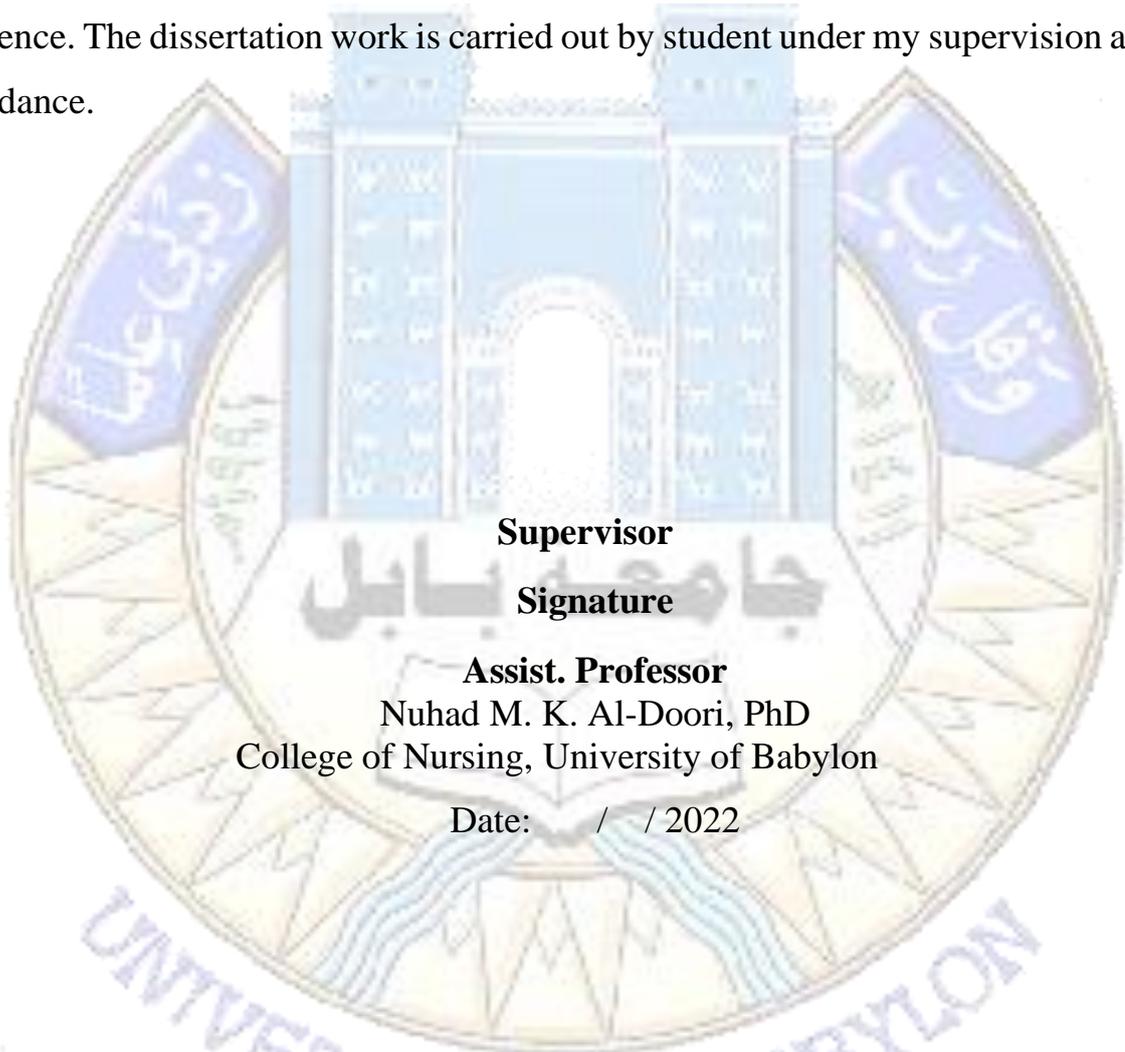
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بسم الله الرحمن الرحيم

الَّذِي خَلَقَنِي فَهُوَ يَهْدِينِ * وَالَّذِي هُوَ يُطْعِمُنِي وَيَسْقِينِ * وَإِذَا مَرِضْتُ فَهُوَ يَشْفِينِ

صدق الله العلي العظيم

سورة الشعراء (آية 78-80)

Dedication

- I dedicate this effort to the memory of my brother Amjad I will never forget you.

- My family for their great help and support. A special gratitude to my exceptional parents, who were the cause of my existence in this world.

- My brothers and sisters, who never stopped caring about me and who their love of being in my veins.

- To all children in Iraq wishing them nice future…

- For the soul of person who left us in a hurry...for the one with a beautiful reputation...for our dear professor, may God have mercy on him...Professor Dr. Hussein Al-Ibrahimi

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Acknowledgments

Abstract

Children in hospitals suffer from moderate to severe acute or chronic pain, reducing their comfort and becoming a global health issue.

A descriptive cross-sectional study design from 21 September 2020 to 2 June 2022, in order to assess factors influencing nurse's knowledge, attitudes, and practices regarding pain management of hospitalized children.

The study population sample includes (300) nurses selected by using non-probability (purposive sample) from six hospitals in the Babylon province. The data was collected from the respondents by using the self-administrative method. The validity of the instrument was determined by a panel of experts, while the reliability of the questionnaire was determined by internal consistency reliability (Cronbach's Alpha reliability) and analyzed electronically using (SPSS) application version 25.

The study findings indicated that more than half of the nurses were had little knowledge related to pain management of hospitalized children. The nurses experienced a week level of practice . There was a significant difference in nurses' knowledge concerning gender . The bivariate correlation analysis presents that there is a considerable difference (positive) between nurses' knowledge and attitudes; and knowledge with practices .

The study concluded that most participants have poor practices regarding children's pain management, gender, workplace, experience in pediatric wards, level of education, and training course have an effect on nurses' knowledge. Nurses' level of education, gender, workplace, training courses, and years of experience in hospitals have been influenced by nurses' practice.

The study recommended that Allocating budgets for training nurses about pain management to improve the quality of nursing care in this regard, resulting in improving the quality of life of patients under pain, and organizing training workshops for nurses of all levels, which focus on how to deal with children of different ages suffering from pain, starting from its assessment to controlling and manage it.

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List of Abbreviations

Abbreviation	Meaning
AACN	American Association of Colleges of Nursing
ANOVA	Analysis of variance
APS	American pain society
AAP	American Academy of Pediatrics
CAS	Color Analog Scale
CBT	cognitive behavioral therapy
FLACC	Face, Legs, Activity, Cry, Consolability
FPS-R	Faces Pain Scale–Revised
GRS	Graphic Rating Scale
HIV	Human immunodeficiency virus
HS	High significant
HSB	Health-Seeking Behaviors
IASP	International Association for the Study of Pain
IASP	International Association for the Study of Pain
IMMPACT	Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials
ICU	Intensive care unit
IV	Intravenous
JCAHO	Joint Commission Accreditation of Healthcare Organizations
KAP	Knowledge , Attitude, and Practice
NHANES	National Health and Nutrition Examination Survey
NICU	Neonatal intensive care unit
NIPS	Neonatal Infant Pain Scale
NRS	Numeric Rating Scale
NS	Not –significant
NSAIDs	Nonsteroidal anti-inflammatory drugs
PCA	Patient-controlled analgesia
PCT	Poker Chip Tool
PIPP	Premature Infant Pain Profile
PNKAS	Pediatric Nurses' Knowledge and Attitudes Survey Regarding Pain

POP	Post operative pain
PRN	pro re nata as needed
RCU	Respiratory care unit
S	Significant
S.D	Standard deviation
SPSS	Statistical Package for Social Science
TENS	transcutaneous electrical nerve stimulation
VAS	Visual analog scale
WHO	World Health Organization
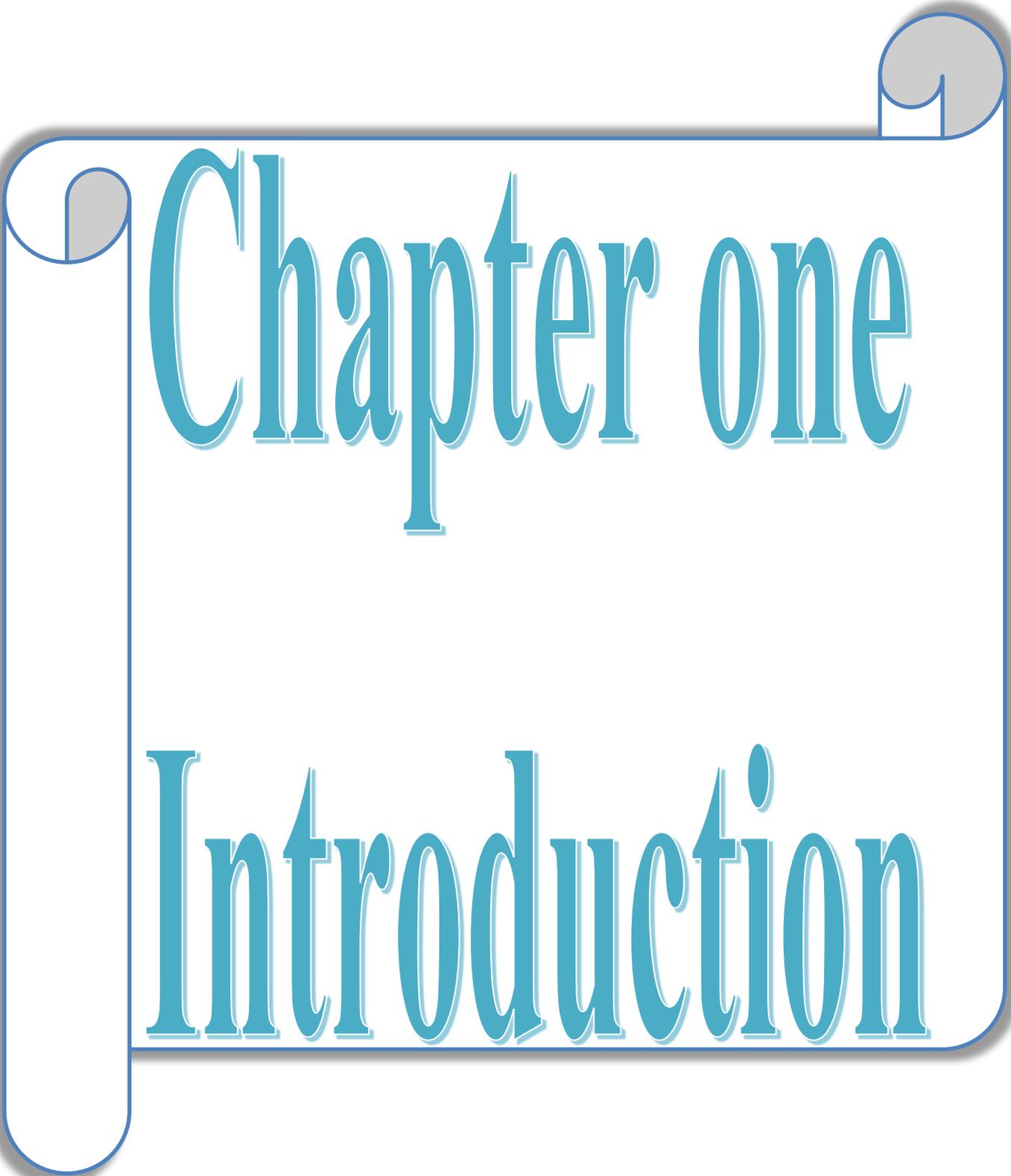
Chapter one

Introduction

Introduction

1.1. Introduction:

Pain is a physical, emotional, and psychological aspect that is all intertwined and complex. pain is considered an unpleasant emotional sensation and behaviour that is linked to a child's past understandings of a specific area of the body and that assesses pain as so complicated because both a sensory and emotional personal experience are included (Kürtüncü et al., 2019)

According to the World Health Organization (WHO), unrelieved pain is a major global health issue that must be addressed as a fundamental human right everywhere (Ndagijimimana, 2017).

Critically ill children with pain may be experiencing an increase in the most common experiences and stressors due to the increasing number of interventions and procedures performed in critical care units. These units and other healthcare facilities continue to misunderstand and undertreat pain, even though it has become a national priority in recent years. The longer patients spend in the pain management unit because of unmanaged pain, the more likely they are to develop other complications and the longer their stay in critical care units (Babiker, 2017).

Pain sensitivity, immune functioning, neurophysiology, attitudes, and health care behaviour have all been negatively affected by untreated pain. Health care providers who work with children have the primary responsibility of alleviating as much discomfort as possible (Cheng et al., 2020).

Kahsay (2017) stated that pain is one of the most dreadful and propagated indicators that people with advanced chronic conditions, including cancer patients, experience. In contrast to adult patients, pediatric patients are more likely to be undertreated and admitted to the hospital for pain due to the widespread misconception that children do not feel or remember the pain.

Regardless of the patient's primary diagnosis, the quality of life they experience can be significantly reduced considerably. Ineffective treatment of pain in children can lead to an increase in their hospitalization rates, which can impact their family's well-being and professional prospects.

The complexity of pain as a multidimensional, subjective experience, especially in children and adolescents, is well-known and can make it difficult to accurately assess or treat (James et al., 2014). Infants and children are particularly vulnerable to pain, which they may feel due to illness, disability, accidents, or even more minor injuries like scrapes, bumps, and burns, which are more common in other age groups. While in the hospital, they may also be subjected to surgical interventions and diagnostic and therapeutic procedures to inflict pain (Alotaibi et al., 2018).

It is difficult to tell the difference between a child's restlessness or crying because of pain and their other emotions like hunger or fear, making pain assessment and management particularly difficult in pediatric patients. Until the last two decades, adults considered the pain to be of negligible importance, and this has changed dramatically. Many health care professionals still have misconceptions about treating children's pain (Mullevithana et al., 2012).

Infants and children present unique challenges because of their age, developmental level, cognitive and communication abilities, and prior pain experiences. In infants and young children, pain assessment is more complicated and challenging than in adults, and there is no single universal method for infant pain assessment (Srouji et al., 2010).

Effective pain management was hampered by various factors, including health care providers' lack of knowledge and attitudes and nurses' inaccurate, inadequate, and poor attitudes toward assessing and managing children's pain. Professionals' misperceptions about the effects of pain medications on children, including respiratory depression and addiction, have contributed to the under-treatment of pediatric pain. Despite this, respiratory distress and addiction among children who misuse pain medication are extremely rare (Bajjali, 2019).

However, according to Alotaibi (2018), a child's age, developmental stage, and cognitive ability to articulate pain's location, duration, and intensity affect pain assessment and management. Also, the parent's reactions to their child are suffering impact them. Children are less likely than adults to receive adequate pain treatment because of the difficulty of assessing and managing pain in children (James et al., 2014).

Pain management is a significant area in the health care of children. The basic principles which recommend a regular accomplishment, using appropriate methods and tools, and acknowledging that the person experiencing pain is the best person to report his/her pain, even if that person is a child, an essential responsibility of health care professionals who care for children is eliminating pain and suffering when possible (U.S. Department of Health and Human Services,2019).

Pain management in pediatric nursing can be challenging as it is not adequately treated or assessed. Studies have found that in the past, children's pain experiences were unacknowledged due to the belief that they could not experience pain at the same level as adults. Pediatric patients received poor treatment for their pain compared to adults who had similar procedures. Today, extensive evidence exists in pediatric pain, and research still shows that this pain frequently goes unrelieved. Pain-related procedures routinely experienced by hospitalized children who require invasive diagnostic tests and medical treatment for their illnesses are often undermanaged (Mbugua and Chemoiywa, 2017).

Immediately following surgery, a high level of pain is expected, which can be difficult to describe or localize but can be controlled and wholly relieved with adequate pain management (Hossain, 2010).

Assessment of pain, whether through pharmacological or non-pharmacological means or in conjunction with other therapies, is a necessary first step in any successful treatment plan. Consequently, developing appropriate assessment instruments for pediatric pain is essential for the assessment not to

become subjective. When using these instruments, should be kept in mind the child's age, medical condition, and level of neurological impairment (Candido and Tacla, 2015).

The first step in treating "children's pain" is accurately assessing the patient's pain's severity. Pain assessment tools or flow sheets are significantly underutilized to document and evaluate the efficacy of pain intervention (Witt et al., 2016). Pain is often referred to as the "fifth vital sign," It should be assessed and recorded as frequently as other vital signs. An accurate assessment of pain informs the development of a treatment strategy. Patients of any age or condition can benefit from systematic and routine pain assessment based on standardized and validated measures (Badar et al., 2020).

Consistent use of pain assessment scales like Face, Legs, Activity and Cry and consolability and other bodily parameters in pediatric intensive care units is necessary to improve pain management, according to Dantas et al. (2016).

Pain in infants and children can be detected and measured using physiological data such as blood pressure, heart rate, respiratory rate, and other indicators. Pain and anxiety can be indicated by changes in vital signs, such as increased blood pressure, pulse, and respiratory rate. There are many ways to tell if a patient is in pain based on behavioral cues like crying, excessive sleeping, withdrawal, refusal of food, and mental changes (Chen and Chen, 2015; Bendall et al., 2011).

Drugs are used in pharmacological pain management, while non-pharmacological pain management relies on other methods to manage pain without medication. Pain management in children's hospitals typically includes non-pharmacological interventions: physical (such as massage) and cognitive (such as imagery, music, or distraction). Because they necessitate nurses' interaction with patients, such as providing hope of relief and building an empathic relationship, non-pharmacological interventions are effective (Abu Amra, 2018).

Much of the research on postoperative pain management has focused on nurses' knowledge and attitudes related to pain and nurses' perceived barriers to providing adequate pain relief to children being cared for by nurses. Children who have undergone surgery are still experiencing moderate to severe pain, even though there have been improvements in care due to increased knowledge, awareness, accountability, and regulatory requirements (Manworren, 2010).

Continuous evaluation and improvement of care are critical components of effective pain management. Pain screening, assessment, diagnosis, documentation, and treatment (pharmacological or non-pharmacological interventions) are all part of effective pain management. Current guidelines recommend using reliable, valid, sensitive and developmentally appropriate tools that include both physiologic and behavioral indicators of pain for infants and children. When a child is in pain, it is critical for pediatric nurses to determine the cause and type of pain, as well as the factors that reduce or increase the pain (Cırık et al., 2019; Thrane et al., 2016)

Unfortunately, health professionals, including nurses, have historically underestimated the existence of pain in children; therefore, pain management has often been less than optimal. The nurse's role in pain management encompasses all aspects of nursing. Medical and nursing teams work together to devise and implement a plan of pharmacological and non-pharmacological pain management strategies. The nurse then implements and evaluates the plan to see if it works (Bajjali, 2019).

Although nurses and other healthcare professionals deal with pain complaints regularly, evidence suggests that pain is not given significant attention and is inadequately diagnosed and managed, especially in pediatric patients (Al-Mahrezi, 2017). Despite improvements in knowledge and understanding of pain mechanisms and their assessment and therapy, numerous studies have indicated that many hospitalized children worldwide still experience unnecessarily high levels of pain. Despite the widespread availability of techniques for assessing pain and evidence-based recommendations for

managing pediatric pain, this problem continues to be of global concern. In Iraq, as in many other countries, pain may go unnoticed, unassessed, undiagnosed, untreated, and unmanaged (Alotaibi, 2019).

Numerous factors have been found to impact successful pain management, including a lack of information and attitudes on the part of healthcare professionals as well as inaccurate, insufficient, and unfavorable nursing knowledge and attitudes in diagnosing and managing children's pain. Prior studies have identified several complex and interrelated factors that have contributed to the undertreatment of pediatric pain, including professional misconceptions about pain medication, particularly respiratory depression and addiction in children; however, numerous studies have demonstrated that the incidence of respiratory distress and addiction due to pain drugs among children is rare (Al Omari, 2016).

Pain management resources and access to opioid analgesics are limited, as are educational and training opportunities for families, nurses and physicians. Cultural and language barriers also play a role in children's ineffective pain assessment and management. A lack of pain management for children in the Arab world, including Iraq, may also be due to these factors (Registered Nurse' Association of Ontario, 2013).

Nurses' knowledge, attitudes, and practices are essential in effectively assessing and managing pain. Quality pediatric pain management depends on education, training, and nursing curriculum elements. Nurses, like doctors, have been linked to under-treating children's pain. 'Nurses' attitudes, beliefs, perspectives, levels of education, and personal pain experiences all influence and contribute to the ineffectiveness of nursing care and pain management for children today (Nazly et al., 2021; Tse and Ho, 2014).

Nurses must have a comprehensive knowledge base, supportive attitudes, and a good understanding of pain assessment and management principles to effectively manage children's pain (Alotaibi et al., 2018).

Nurses play a critical role in assessing and managing children's pain during hospitalization. Compared to other health care professionals, they spend most of their time at the patient's bedside and play an essential role in assessing and documenting pain. Consequently, they must serve as the primary agents of change to improve pain management outcomes for patients (Cahyani et al., 2019).

The role of nurses in postoperative pain management (POP) management is critical, and they must have extensive knowledge and skills in this area. Most healthcare facilities rely heavily on nurses, who comprise most of the healthcare workforce and interact with patients daily (Menlah et al., 2018).

It is surprising that some nurses still believe that evaluation tools are subjective, pointless, and inaccurate. In order to assess pain intensity, they rely on children's responses and behaviors and ignore their self-reports. Nursing education programs have been shown to improve nurses' ability to respond to children's pain, at least in developed countries. There is evidence from developing countries where there are few health resources, no systemic strategies, and little focus on pediatric pain management that nurses are not receiving adequate training in pain management (Deldar et al., 2018).

With no formal training in pain management, nurses' knowledge and attitudes toward pediatric pain become more important, particularly if they were not exposed to formal training. Also critical is the theoretical knowledge that strengthens the ability to manage pain, and a lack of this knowledge can lead to incompetent clinical practice. Therefore, primary nursing education must prepare nurses with the knowledge required to execute the tasks related to providing care for a patient experiencing Pain (Parvizy et al., 2020).

According to The American Academy of Pediatrics (AAP) and the American Pain Society (APS), which were mentioned by (Stanley and Pollard, 2013), physicians' failure to effectively manage pain is blamed on medical professionals' misconceptions, a lack of knowledge, and a poor application of what they know. Knowledge, attitudes, and skills of those administering pain

treatment are critical to its effectiveness. Nurses may be unable to accurately assess pain due to a lack of knowledge about pain assessment, which prevents them from putting their training into action.

As a result, this study aimed to identify factors influencing nurses' knowledge, attitude, practice with pain management and address these issues through researches and planned educational activities.

1.2. Importance of the Study

Hospitalized patients and public health issues worldwide are still overwhelmed by poor pain management. Most people will experience some form of pain at some point in their lives, whether mild or severe, short or long-term, and for various reasons. In clinical settings, nurses play a critical role in assessing and treating pain. Analgesics, especially opioids, may be misused, resulting in undertreatment of pain. They must be knowledgeable about how to assess best and manage pain. Although research has increased the awareness of pain management and has extended knowledge of effective methods to assess and manage pain, nurses have not adequately used this knowledge to improve the care of patients experiencing pain. Many patients still suffer unnecessary distress (Nimer and Ghrayeb, 2017).

Due to common myths and misconceptions, pediatric pain is often misunderstood, underestimated, and poorly assessed and managed, despite scientific evidence showing that healthy children of all ages can feel and respond to pain. One of the most persistent myths among medical professionals and families with young children is that opioid therapy is dangerous for them because of the potential side effects and the fear of addiction. The result is that the analgesic medications needed to alleviate or control the pain and suffering of children are not always provided (Alotaibi, 2019; Linhares et al., 2012).

Many health care providers, including nurses, lack the necessary training and resources when it comes to learning how to treat children's pain. Because of a lack of access to pain knowledge online and expensive textbooks, developing countries are more likely to experience this phenomenon (Hurley-Wallace et al.,

2019; Alotaibi, 2019; Albertyn et al., 2009). Children are still experiencing moderate to severe postoperative pain, so it is critical to identify the cause of this unrelieved pain (Smeland et al., 2018).

Pediatric pain management can be hindered by nurses' lack of knowledge and understanding and negative attitudes. In this population, untreated pain can have long-term physical and mental consequences. Healthcare professionals must treat pediatric pain as quickly and effectively as possible (Small, 2021).

According to the Healthcare Cost and Utilization Project, more than 5,000,000 children in the United States were hospitalized in 2017. In many cases, they had to deal with the pain that profoundly affected their mental and physical health. Chronic pain syndromes can be developed due to the physical sensation of pain and emotional suffering, respiratory complications, decreased mobility, poor sleep, immune impairment, reduced quality of life, and economic costs. Despite advances in care, many children experience significant pain because of undertreatment and inadequate pain management after surgery. Children must get early detection and treatment of pain to minimize its short- and long-term impacts (Wrona, 2021).

Up to 40% of children and teenagers reported pain that occurred at least once a week, and at least 15% of children experienced chronic pain. Pain prevalence ranges between 20% and 27% in additional studies (King et al., 2021). There are many reasons why a child may be in pain, such as minor scrapes and bruises, long-term conditions like diabetes, and more. At least 15–20 per cent of children and adolescents report having chronic pain at least once a week, and that number rises to as high as 40–60 per cent (Mohammed, 2018).

Despite the World Health Organization's publication of evidence-based standards and guidelines for pediatric pain management policy, statements, and recommendations, recent research indicates that many children continue to experience unrelieved pain during hospital admission, with its prevalence noted as high as 94% (WHO, 2020).

Regardless of the expansion of knowledge and the availability of medicines, it has been found that 49–64 per cent of children hospitalized worldwide receive poor pain management. Both practicing pediatric nurses and nursing students have relatively limited understanding of pain and how to treat it (Mukandanga, 2019; Ortiz et al., 2015). According to studies, managing pain in hospitalized children admitted to the pediatric department is a serious issue. Poor pain relief has been linked to adverse outcomes, such as delayed recovery and an increased risk of early mortality in children, where untreated pain can lead to a significant handicap and raise the chance of death (Pielech et al., 2020; U.S. Department of Health and Human Services, 2019).

About 25% of U.S. children experience some form of pain. Although joint pain among children is not often adequately evaluated in this setting. Nurses play a critical role in the process when it comes to finding and screening patients who may be in pain. Despite these standards, nurses in the emergency department may not be aware of or consistently use evidence-based practices related to pain assessment and management. Nursing pain assessment and management knowledge are critical to ensuring that patients receive consistent treatment (Alexander, 2018).

There is also a lack of adequate pain management in patients of all ages; previous studies have found that children receive less analgesia than adults in comparable situations, and significant numbers of hospitalized children experience unacceptable levels of pain as a result of health care providers' lack of knowledge about pain management practice and myths about pain, which hold that infants and children do not feel pain (Lima et al., 2018). About 17% of American children aged 4 to 18 have frequent or severe pain, such as migraines, according to the National Health and Nutrition Examination Survey (NHANES). More than two-thirds of children (27–64 per cent) admitted to large North American hospitals reported experiencing moderate to severe pain during their stay (Liyew et al., 2020).

Nurses frequently express a lack of awareness regarding pain management, with an estimated 50% of nurses reporting a lack of expertise in pain assessment and management. Additionally, studies have revealed that nurses tolerate misconceptions and beliefs about pain, interfering with the practice of effective pain treatment (Friedrichsdorf et al., 2016).

Ahjil and Maala (2012), according to their study conducted in Baghdad province, reported that the nurse's knowledge of pharmacological intervention for pain management was poor, and a negative attitude toward pain can lead to poor pain management practices of nurses. As a consequence, unnecessary suffering for children in their care. Adequate care cannot be achieved while the nurse has a knowledge deficit or is influenced by attitudinal barriers.

Pain management is a significant issue concerned with children in any treatment setting. In Human Immunodeficiency Virus (HIV) infected children, poor pain relief has been linked to poor recovery and an increased risk of early death. Lack of adequate pain management in children in the hospital is well-documented, although these consequences are well-known (Kholowa et al., 2017).

Patients' anxiety, reduced communication, sleep disturbances, impaired mobility, loss of appetite, restlessness, and a decreased quality of life are all caused by a failure to manage pain in the patient's life effectively. Chronic pain in children has long-term consequences that include increased sensitivity to pain in the future due to changes in the nervous system's response, reduced effectiveness of opioids, difficulty understanding the procedures and needle phobia (Swartzentruber, 2021).

However, despite the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) establishment of standards for pain assessment and management in response to public outrage about the widespread problem of the under-treatment of pain, it has been recognized as a significant public health problem for hospitalized children and adolescents. An estimated 15%-25% of children have acute or chronic pain (Joint Commission, 2017).

Hospital emergency departments see one-third of their patients as children and adolescents, and 70% have moderate to severe pain and need a painful procedure. There is no need for children and their families to unnecessarily suffer because of unaddressed childhood pain, which can have short- and long-term physical and emotional effects as well as social problems such as psychological distress, psychological vulnerability, and anxiety (Agbim and Wang, 2017).

Additionally, Andersen (2018) pointed out that children in the hospital are frequently subjected to pain due to injuries, illnesses, or procedures. Between 24 and 72 per cent of hospitalized children reported moderate to severe pain, defined as a score of 4 or higher on a Numeric Rating Scale or an observational pain scale ranging from 0 to 10 points, according to studies conducted in the last decade. Compared to research using data taken from chart reviews that only account for documented pain levels, studies based on interviews with children and parents typically indicated greater pain scores. In 2014, Birnie et al. discovered that 62% of hospitalized kids had experienced clinically significant pain in the previous 24 hours as determined by the discrepancy between self- or proxy-reported pain intensity and pain beginning.

A significant issue today is that even if WHO and the International Association for the Study of Pain (IASP) were to declare pain relief as a human right, studies worldwide continue to show that it is widespread in hospitalized children. However, it is not documented, untreated, or even acknowledged as a problem. According to research, approximately 20% to 35% of children and adolescents worldwide are affected by moderate to severe pain. Pain is one of the most common reasons children seek medical attention, according to these numbers (Bonga and Yeshidinber, 2019; Mihretu, 2018).

As a result, it may have adverse physical and psychological effects, including increased oxygen use and changes in blood glucose metabolism. Additionally, a young child who experiences untreated pain may have long-term physiologic, psychological, and behavioral effects. 40% of children report

experiencing acute pain, whereas 15% to 20% of children experience chronic pain (Gadallah et al., 2017).

In addition, increased risk of deep vein thrombosis and pulmonary embolism, myocardial infarction, pneumonia, delayed wound healing and lengthened hospital stay are consequences of poor post-surgical pain management in children (Sanders et al., 2015).

It is no secret that children's pain is one of the most distressing aspects of illness or hospitalization, and this has become increasingly apparent in recent years. Their health and future development could be adversely affected. Despite pain control protocols, pediatric pain remains high in children, and analgesics are insufficient. According to recent research, children in hospitals worldwide suffer from high pain levels, although the number of treatment options for this condition has increased (Friedrichsdorf and Goubert, 2020).

Many children worldwide do not get the care they need, although they can be helped by low-cost drugs and physical and psychological treatments. Reducing a child's suffering should be a legal requirement and an ethical and humanitarian commitment (Candido and Tacla, 2015).

However, according to several international pain experts, including the WHO, optimal and effective pain management is a fundamental human right, good and ethical. Patients' pain, especially children, go through as a result of their illness and treatment. The disease is difficult to comprehend or accurately describe, and even the most minor medical treatments may harm some children (Heo et al., 2016).

After 20 years, the focus on children's pain management is still strong. Scientific inquiry methods can understand better and manage children's pain. However, much we know about disease progression, treatment, and inadequate pain management, the specific practice will be insufficient to address it. As a result, pain management for children in domestic and international contexts has been aimed at determining why it is ineffective (Eccleston et al., 2021).

1.3.   Statement of the Problem

Research shows that children continue to experience pain due to ineffective pain management practices despite recent advances in pain management; despite a commitment among healthcare professionals, this issue remains serious. Numerous misconceptions, including those children, do not feel pain, as well as insufficient knowledge, inadequate application of knowledge, and nurses' attitudes toward pain in children contribute to ineffective pain management.

Surveys continue to illustrate that children's pain is poorly managed during invasive procedures in critical care units despite good evidence supporting effective pain management strategies. A cross-sectional study was carried out among 100 nurses working in male and female surgical wards, ICU, surgical ward, emergency and operating theatre, which showed that nurses' have poor knowledge about pain management (Majeed et al., 2020). Another quasi-experimental design has been applied to (50) nurses in AL-Najaf AL-Ashraf city; the study concluded that most nurses in the surgical ward had a knowledge deficit concerning managing a patient with postoperative pain (Abdul-Jaleel and Rajha, 2020). Furthermore, nurses' knowledge, attitudes, and practices regarding pediatric pain management are lacking in Iraq, especially in Babylon province. In order to determine whether nurses are equipped with the knowledge and attitudes necessary to provide their patients with the best possible pain management, more research must be done.

1.4. Significance of the study

According to numerous studies, healthcare professionals worldwide fail to recognize and treat pain. As a result, proper pain management is the only way to keep children out of the hospital and out of pain.

Most previous studies were carried out in countries with culturally homogeneous nursing populations in Iraq and Babylon province, where little is known about the burden of unrecognized and undertreated pain on children. Notably, no research has been done in Babylon province on "nurses'" knowledge,

attitudes, and practices regarding managing "children's" pain. None of the factors influencing nursing care in Babylon province has been studied. Nurses' knowledge and practice in pain management can be assessed to identify the outcome and continue dealing with it. As a result of this research, gaps in current pain management practice knowledge and beliefs that could impede the delivery of optimal care will be uncovered. Nursing practice will benefit from this study's findings as well: This study's findings will help nurses become more knowledgeable about how to assess and manage pain in hospitalized children and will aid in the creation of clinical audits and other projects aimed at improving quality. All patients in the province, including children in the hospital, may benefit in the long run. Department of Health for the Province of Babylon: The findings of this study could serve as a landmark for future planning and policymaking at the local levels of nursing supervision in the Babylon province health department, as it was primarily carried out across the province. Nongovernmental organizations that conduct nursing research include: Those findings will serve as a guide for other researchers interested in the topic and will also aid in the development of new programs aimed at improving hospitalized children's 'nurses' understanding, attitude, and ability to manage their own and others' pain.

1.5. Objectives of the study

1.   To assess nurses' knowledge, attitudes, and practices regarding pain management of hospitalized children.

2.   To assess the relationship between knowledge, attitudes, and practices among nurses

3.   To assess factors influencing the knowledge, attitudes, and practices of nurses regarding pain management of hospitalized children

4.   To determine the relationship between demographic characteristics of the sample and nurses' knowledge, attitudes and practices regarding pain management of hospitalized children.

1.6. Research question

1. Is there a difference between nurses' selected demographic variables (Age, gender, residency etc.) and the level of knowledge, attitudes and practices (KAP) about pain management?

2- Is there significant positive or negative relationship between the nurse's level of KAP about pain management ?

3- Do the organization, Nurses, Parents, Children's, and Culture factors affect the level of their KAP ?

1.7. Research Hypothesis

First Hypotheses:

H1: There   is a significant difference between nurses' selected demographic variables and the level of KAP in pain management at $p \leq 0.05$.

H0: There   is no significant difference between nurses' selected demographic variables and the level of KAP in pain management at $p \leq 0.05$.

Second hypothesis:

H2: There is significant positive or negative relationship between the nurse's level of KAP about pain management at $p \leq 0.05$

H0: There is no relationship between nurse's level of knowledge, attitudes, and practices about pain management at $p \leq 0.05$.

Third hypothesis:

H3: There are an influence for organization, Nurses, Parents, Children's, and Culture factors on participants' knowledge, attitude and practice about pain management in children at $p \leq 0.05$

H0: There are not an influence for organization, Nurses, Parents, Children's, and Culture factors on participants' knowledge, attitude and practice about pain management in children at $p \leq 0.05$

1.8. Definition of Terms

For this study, the following definitions of terms will be employed:

1.8.1. Factors influencing

1.8.1.a. Theoretical Definition :

The influencing factors are those factors that can affect some features of a target object (IGI Global dictionary, 2022).

1.8.1.b. Operational Definition :

Different factors like organizations, nurses, culture, children, parents factors can affect nurses' knowledge, attitudes, and practices about children's pain management.

1.8.2. knowledge

1.8.2.a.Theoretical Definition:

is defined as the fact or condition of knowing something with familiarity gained through experience or association (Merriam-Webster Online Dictionary, 2022).

1.8.2.b. Operational Definition:

Refers to the information in the act by the nurse who works in pediatric wards concerning definition, types, and management of child pain.

1.8.3. Attitudes

1.8.3.a. Theoretical Definition

A relatively enduring evaluation reaction to other individuals, situations or objects, which may be positive or negative. Typically defined as compression affective cognitive and behavioral components (Vogel, et al., 2016).

1.8.3.b. Operational Definition:

It is the evaluative response of nurses (their opinions and ideas) about Child pain management.

1.8.4. Practices

1.8.4.a.Theoretical Definition:

the act of doing something regularly or repeatedly to improve your skill at doing it:(Cambridge dictionary, 2022)

1.8.4.b. Operational Definition:

The implementation of pharmacological and non-pharmacological strategies by the nurses toward pain management.
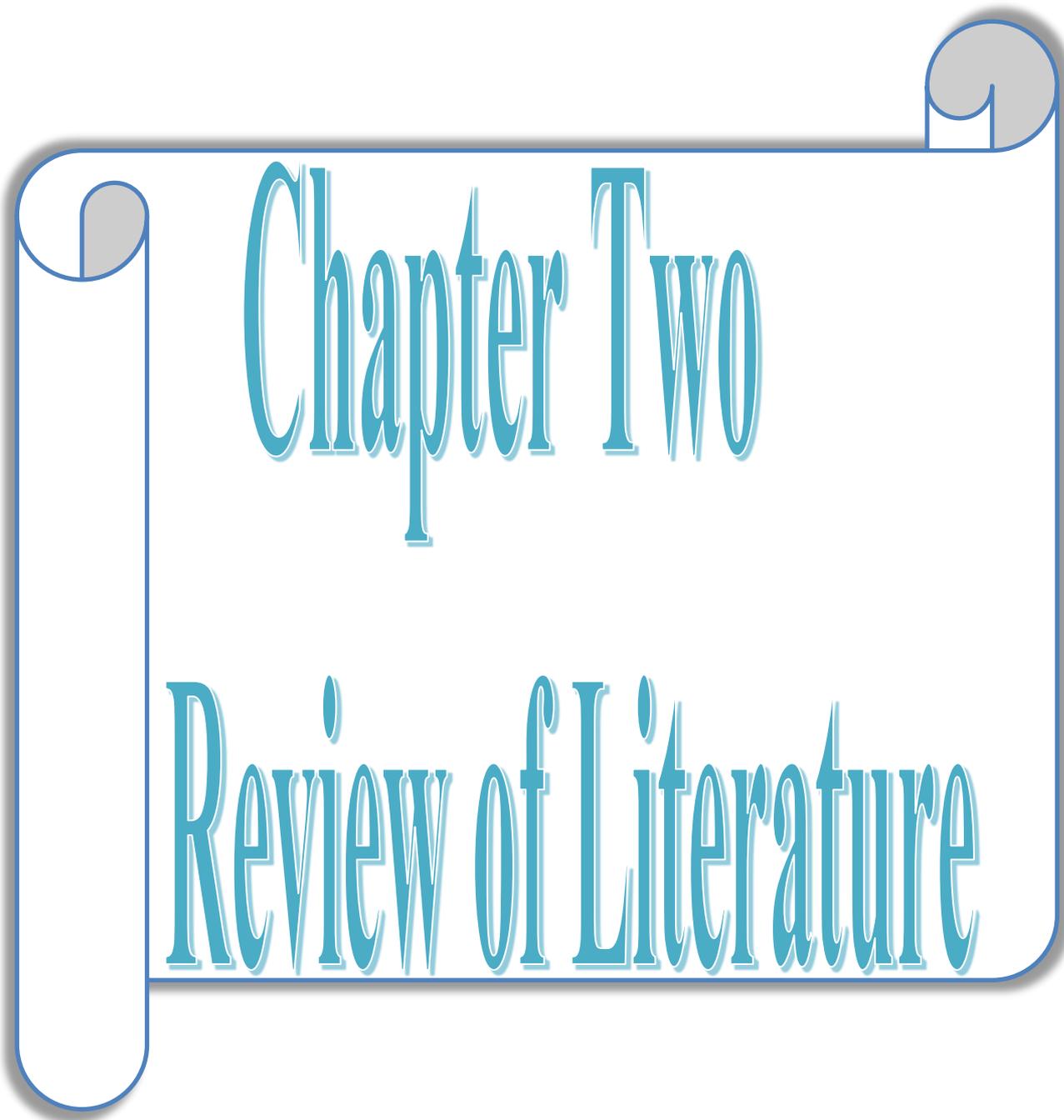
Chapter Two

Review of Literature

Review of Literature

This chapter presents almost all-available and relevant literature that with regard to pain definition and assessment there are many classification systems which were used.

2.1. Historical overview:

The term pain is derived from the Latin word poena, which means penalty, punishment, or sadness, and the Greek word poine, which means penalty. The majority of dictionary definitions define pain as an unpleasant bodily experience, a feeling of discomfort, or emotional suffering. The International Association for the Study of Pain was founded in May 1972 during the first major scientific meeting on pain (IASP). In 1986, the International Association for the Study of Pain's Subcommittee on Taxonomy defined pain as an unpleasant sensory and emotional experience connected with existing or potential damage, or described in terms of such damage (Raja et al., 2020; Aydede, 2019; Mwangi, 2009).

For the majority of people in ancient societies, pain was not considered as an injury, but rather as a punishment from gods to purify the body of sin and wicked deeds. There is a widespread belief in many religions today that this concept has been around for a long time (Givler et al., 2020).

While there has been intellectual dispute over the nature of pain and its beginnings, it was the ancient Greek philosophers who were the first to distinguish pain as a sensation rather than a feeling (Benzon et al., 2014). Plato and Aristotle believed that pain was a sensory experience heightened by touch,

and that the heart was the center of all feelings, including pain, from the 3rd to 5th centuries (Koestler & Myers, 2002).

As discoveries in the kingdom of human anatomy and physiology evolved, modern notions of pain arose, contributing to the widespread acceptance and use of anesthesia in the nineteenth century.   (Yim and Parsa, 2018; Robinson and Toledo, 2012). Anand et al (2020) was pointed that although infant pain was recognized in ancient history and even into the 17th century, the emerging reliance on scientific methodology and prevailing scientific theories in the late 19th and 20th centuries resulted in an almost universal denial of pain perception in infants . While there have been significant advances in the study of pain and its mechanisms in the twenty-first century, As a result of a lack of understanding or concern about the potential bad consequences of pain treatment, including addiction and respiratory depression, particularly in children (e.g. newborns do not experience or expect pain), a number of pain physiology and treatment elements have been discovered (Alotaibi , 2019 ; Rosenblum et al., 2008)

It has long been thought that infants and children do not respond to or remember the pain in the same way as adults, which led to the incorrect conclusion that appropriate pain management is not important in this age range. Children's ability to deal with distress while playing or watching television has caused health care providers to believe that their patients are pain free without asking them, leading in the withholding of needed analgesics.(Oakes, 2011)

2.2. Concept of pain

It is an unpleasant sensory and emotional experience resulting from actual or potential tissue damage. It is the most common reason for seeking health care and considered as a fifth vital sign .Since Pain is one of the most

common symptoms experienced by patients ; nurses spend more time with patients in pain than other health care providers do, that need to understand the pathophysiology, the physiologic and psychological consequences of acute and chronic pain, and the methods used to treat it (Asmare, 2020)

Pain is a complicated phenomenon that necessitates collaboration and implementation of therapeutic treatment strategies by doctors and nurses who have direct contact with patients. Nurses, on the other hand, were found to be ineffective in post-operative pain management despite being the most numerous members of the health team, who should advocate for patients' rights, who spend the most time with patients, who are often the first to notice when patients are in pain, and who frequently include pain as a diagnosis in the care plan. That is, pediatric nurses commonly use developmentally inappropriate pain scales when assessing children and fail to document pain assessments regularly and consistently in the nursing notes. Furthermore, nurses prefer untested traditional pain relief methods over pharmacological treatment to treat children's pain , which has common miscommunication between family, physician and nurses (AlReshidi et al., 2018).

Pain which is undiagnosed and untreated by nurse has devastating effects and significantly interferes with the patient's physical, emotional and spiritual wellbeing, and thus can alter the patient's quality of life . It is considered a worldwide health problem in both poor and developed countries since it remains untreated (Tadesse et al., 2016).

2.3. Types of pain :

Pain can be qualified or described in two basic ways: by its cause or origin and by its description or nature. Pain categorized by its origin is either cutaneous, somatic, or visceral. Cutaneous pain is caused by stimulation of the cutaneous nerve endings in the skin and results in a well-localized burning or prickling sensation; Knees and fingers can be jammed in order to cause somatic pain, which is non-localized because it is caused by damage to the supporting components of the body. In contrast to cutaneous pain,

which is more localized and rapidly conveyed, visceral pain refers to discomfort in the internal organs. Because the location may not be immediately linked to the cause, it might be difficult to determine the extent of the problem. (Cervero, 2014; Mazur et al., 2013; Sengupta, 2009).

Pain can be acute or chronic, and it involves peripheral physiologic, cognitive, and emotional components of the central nervous system. Acute pain is frequently linked to a specific injury that heals in a predictable and predictable time frame. Untreated or undertreated persistent acute pain alters the nervous system, resulting in chronic pain. It's also known as nociceptive or neuropathic pain, define nociception as the way the nervous system encodes and interprets damaging impulses in the body (Wieboda et al., 2013). Nociceptive pain is caused by a certain type of nerve ending, the nociceptors, being inflamed. There are two divisions that characterize the physiologic structures that are connected with nociceptive pain, somatic and visceral. Skin and subcutaneous tissue discomfort is well-localized but does not include bone, muscle or blood vessels. Somatic discomfort is often described as a dull ache. As opposed to neuropathic and musculoskeletal pain, visceral pain affects the inside organs of the body and is more difficult to pinpoint. Visceral discomfort causes referred pain that affects distant dermatomal or myotome locations (Burns et al., 2012).

2.4. Classification of pain

2.4.1. Classification of pain based on duration of pain:

Pain can be considered as acute which lasting less than 30 days, while that lasting more than three months as chronic.

However, these definitions are arbitrary and not essential for deciding on treatment strategies. Symptoms and causes of the two types of pain may overlap and pathophysiological factors can be independent of duration. Therefore, this division between acute and chronic pain based on duration may be problematic. Acute pain is of sudden onset, and intense in severity, however it is usually short-lasting (Kahsay, 2017; Srouji et al., 2010).

Acute pain associated with surgical procedures, trauma, or disease is experienced by thousands of hospitalized American children each year. The right of children to be pain-free must be respected. and nurses have the obligation of preventing or alleviating their pain. Appropriate pain control improves healing and recovery; untreated pain can hinder healing, delay recovery, and even lead to death (Vincent and Denyes, 2009).

Chronic pain is pain that lasts for an extended period of time and does not go away. Acute pain that persists for a long time, or pain that recurs as a result of recurrent exposure to noxious stimuli, can be the beginning of chronic pain. Every area of everyday life can be significantly impacted by chronic pain, from physical activities to school attendance and sleep patterns to family connections and social interactions, leading to anguish, worry, melancholy and other mood disorders such as insomnia and exhaustion (Treede et al., 2015; Vakili et al., 2015; MedStar Health, 2012).

Characteristics of Acute and Chronic Pain

Acute Pain	Chronic Pain	Chronic Cancer Pain
Identifiable cause	Cause hard to find	Usually identifiable cause
Short duration	Lasts longer than three months	Duration varies
Sudden onset	Begins gradually and persists	Onset varies
Well defined	May or may not be well defined	May or may not be well defined
Limited	Unlimited	Unlimited
Decreases with healing	Persists beyond healing time	May persist beyond healing
Reversible	Exhausting and useless	Exhausting and useless
Objective signs and symptoms	Objective signs absent	Objective signs absent
Anxiety	Depression and fatigue	Depression, fatigue, and anxiety

Figure 2.1: Show acute and chronic (Ward and Hisley, 2015)

2.4.2. Pain classified by Etiology:

Categorizing pain according to etiology is another way to think about pain and its management. Burn pain and post herpetic neuralgia are examples of pain described by their etiology. Clinicians often can predict the course of pain and plan effective (Abd-Elsayed and Deer, 2019).

Pain can be divided into cancer pain and non-cancer pain based on the underlying causes. Many cancer patients seek relief from their chronic pain by visiting a pain clinic. Non-cancer pain is generally musculoskeletal or myofascial in origin, and treatments such as trigger point injections and rehabilitation therapy are often required to alleviate it (Manchikanti et al., 2011).

Cancer pain frequently necessitates the use of as much pain medicine as necessary to alleviate the patient's discomfort, without consideration to the risk of addiction. Cancer pain is further split into visceral, somatic, and neuropathic pain types. Somatic and visceral pain is treated with opioids, while neuropathic pain is typically treated with anticonvulsants and antidepressants. Opioid medicines are frequently indicated and can be helpful in the treatment of cancer-related pain. Patients who are on the verge of passing away should be given as much pain medication as is necessary to alleviate their suffering, regardless of the risks of addiction and toxicity (Smith and Saiki, 2015).

2.5. Theories of Pain:

2.5.1. Theory of Pain Gate Control

Using the gate control theory of pain, one can explain how pain signals go from the injury site to the brain, where they are interpreted as such. An impulse can be stopped by activating the substantia gelatinosa of the spinal cord's dorsal nerve ring, according to this theory. This stops the pain signal from being received and interpreted as pain at the brain level. Three strategies can be used to activate gating mechanisms: cutaneous stimulation, distraction, and anxiety reduction (Pillitteri, 2018).

This mechanism is influenced by descending nerve fibers from areas in the brain that regulate thought, beliefs, and emotions. The gate-control theory helps to understand the role of psychological factors in the perception of pain. The theory explains the effects of some interventions such as distraction and imagery in relieving pain (Coburn, 2017)

The gate control theory explains why alternative pain management strategies work so well in reducing pain. The substantia gelatinosa in the dorsal horn of the spinal cord closes the gate and reduces the transmission of pain signals to the brain when the bigger A-delta fibers are stimulated with ice or no painful touch and pressure, such as massage (Ball et al., 2010)

2.5.2."Specificity theory of pain"

The presence of specialized pathways for each somatosensory modality is referred to as the Specificity Theory. The Specificity Theory states that each modality has a unique receptor and associated sensory fiber (primary afferent) that is sensitive to a single input. Non-noxious mechanical sensations, for example, are encoded by low-threshold mechanoreceptors, which are connected with specific primary afferents that project to mechanoreceptive second-order neurons in the spinal cord or brainstem, according to the model (depending on the source of the input). Second-order neurons in the brain project to higher mechanoreceptive regions. Similarly, noxious stimuli would activate a nociceptor, which would send a pain fiber up to higher pain centers. These notions have been developing for millennia, but were scientifically proven and explicitly posited as a theory by physiologists in Western Europe in the 19th century (Moayedi and Davis, 2013).

2.5.3. Pattern theories

A quantitative theory of feeling was proposed in an attempt to alter pain theories (1929). According to this idea, many of the facts supporting the

specificity theory of pain was overlooked , as were findings of specialized nerve endings. The hypothesis held that any soma esthetic feeling was caused by a specific and unique sequence of neural firing, and that the stimulus kind and intensity were conveyed by the spatial and temporal profile of peripheral nerve firing. (Hadjistavropoulos and Craig, 2008).

2.6. Pain Mechanisms

The mechanisms involved in pain perception (nociception) can be divided into four processes: transduction, transmission, perception and modulation. The integration of these processes is illustrated in Figure (2.2) (Twycross et al., 2013)

Figure (2.2) pain mechanism (Nicki and Barbara, 2012)

Pain conduction consists of four major steps: transduction (sensing the pain sensation), transmission (routing the pain sensation to the spinal cord), perception (the brain interprets the sensation as pain), and modulation (steps taken to relive pain). Transduction begins in the peripheral nerves when a mechanical, thermal, or chemical stimulus activates nociceptors, a
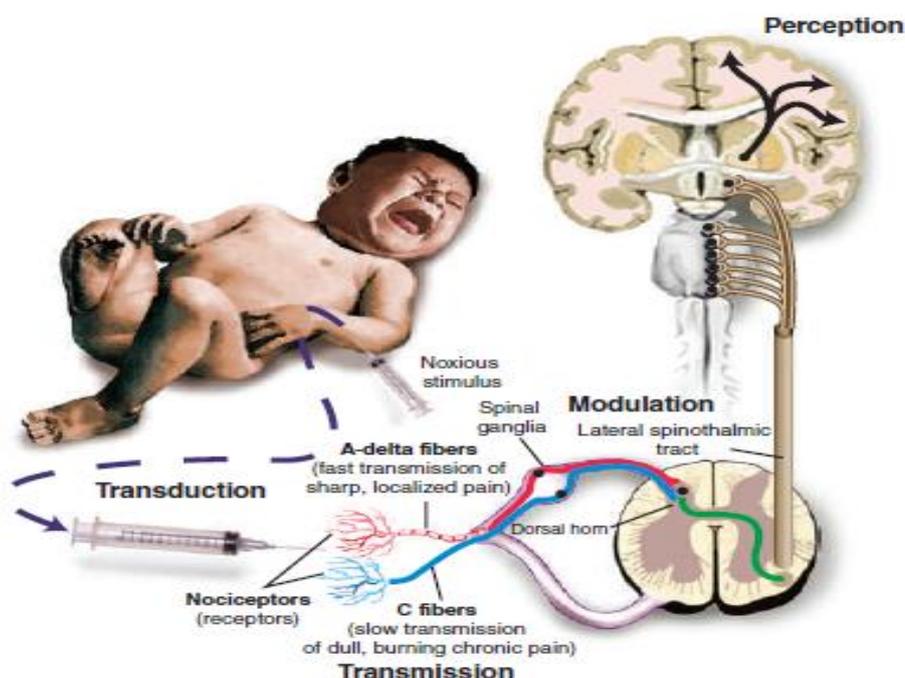
specialized group of sensory receptors. Several neuro transmitters' (e.g., substance P) are also stimulated and involved in conducting pain. Pain impulses join central nervous system (CNS) fibers in the dorsal horn of the

spinal cord. Here the impulses are projected upward to the brain, where they will be perceived as pain (Pillitteri, 2018).

2.7. Pain's Clinical Signs and Symptoms

2.7.1. Physiologic Indicators

Acute pain can lead to a variety of physiological changes. including increased heart rate and blood pressure, flushing or pallor of the face and body, dilated pupils, peripheral vasoconstriction, pallor and flushing. and increased perspiration, as well as decreased oxygen saturation and Catecholamine and adrenocorticoid hormone production is enhanced. These physiologic markers show that the body's stress reaction is complex. Acute pain cannot be monitored using these symptoms because they are not particular to it. However, some of these signs can be used to assess pain when combined with behavioral changes and self-reporting (Jevon and Ewens, 2012)

2.7.2. Behavioral Indicators

Newborns and infants demonstrate a large number of behaviors when in acute pain. Knitted brows, elevated cheeks, squinted eyes, closed eyes, sobbing, jerky movements, stiff posture, and nervousness are all examples of these behaviors. Exhibited behaviors that could indicate pain or anxiety in infants and toddlers include the following: restlessness or agitation, hyper alert and vigilant, sleep disturbances, and irritability or difficulty comforting the child. Many of the following behaviors can be seen in preschoolers, school-age children, and teenagers (McPhersonet al., 2020).

Attention span is short (child is difficult to distract) , Posturing (avoiding movement to protect a painful joint), immobility, or protecting the painful area are all options, and Knees should be drawn up, limbs should be flexed, and the affected area should be massaged.

Apathy, sluggishness or a lack of interest , Disruptions to sleep , Depression and/or violent conduct, particularly in people who are experiencing emotional anguish and worry that their distress may intensify.

Many of these behaviors are the basis for the pain assessment tools developed for use in this age group. A sick newborn or infant will have a weaker cry, They lack the energy to move about as much as a healthy infant. Sick newborns with prolonged pain will become passive with few body movements and an expressionless face . Preverbal infants Even children's indications of discomfort may be contradictory (agitation or withdrawal, grimacing, crying, or anger), thus making assessment and monitoring of pain management more challenging (Cong et al., 2013).

Facial expression and cues are among the most frequently used nonverbal signs to recognize pain in an infant or child . Facial characteristics with the eyes forcefully closed, brows lowered and furrowed, deepened nasolabial fold, a square mouth, and a taut, cupped tongue are associated with acute pain . In older children, facial characteristics indicative of acute pain include facial grimacing and biting or pursing lips . Anxiety usually accompanies pain, and children with a memory of painful experiences may demonstrate increased distress (Qasim et al., 2021;Blais et al., 2019).

2.8.Misconceptions about children pain

The idea that youngsters are less sensitive to pain was once widely accepted by healthcare practitioners. Gradually, they come to understand that children of all ages, including infants, experience pain in the same way that adults do (Ball et al., 2017).

In general, children's reactions to pain are determined by the type, severity, and age and developmental level of the discomfort. It is because of these myths that children with similar conditions receive insufficient pain therapy compared to adults with similar diagnoses (Ricci and Kyle, 2013)

Myths and misconceptions about children and pain

Myth or Misconception	Fact
Newborns do not feel pain	Newborns, including preterm newborns, do feel pain. The neurologic and hormonal systems needed for the transmission of painful stimuli are sufficiently developed
Exposure to pain at an early age has little to no effect on the child	Prolonged or severe pain can lead to increased newborn morbidity. Infants who have experienced pain during the neonatal period respond differently to subsequent painful events[a]
Infants and small children have little memory of pain	Repeated exposure to painful procedures and events can have long-term consequences Memories of pain may be stored in the child's nervous system, influencing later reactions to painful stimuli[a]
The intensity of a child's behavioral reaction indicates the intensity of the child's pain	Numerous factors affect a child's response to pain. Each child is an individual, with his or her own set of responses
A child who is sleeping or playing is not in pain	Sleep or play may be a coping strategy for the child in pain. Sleep may reflect exhaustion of the child who is coping with pain
Children are truthful when they are asked if they are experiencing pain	Often, children deny pain to avoid a painful situation or procedure, embarrassment, or loss of control Children may assume that others know how they are feeling and thus will not verbalize their complaints
Children learn to adapt to pain and painful procedures	Repeated exposure to pain or painful procedures can result in an increase in behavioral manifestations
Children experience more adverse effects of narcotic analgesics than adults do	The risk of adverse effects of narcotic analgesics is the same for children as for adults
Children are more prone to addiction to narcotic analgesics	Addiction to narcotics when used appropriately to treat children's pain is very rare and no more common than in adults[b]

Figure(2.3): Myths and misconceptions about children and pain(Kyle and Carman, 2021)

2.9. Prevalence of pain

Idiopathic pain (e.g., headache 23%–51%), functional abdominal pain (1.6–41.2%), back pain (14–24%), and musculoskeletal pain (4%–40%) had a median prevalence of 11% to 38%, respectively, in community surveys. Similar to disease-related discomfort, there are significant rates of prevalence. Sickle cell disease, for example, frequently results in pain associated with vaso-occlusive episodes. These episodes can begin as early as 6 months of age, 12 and they can be frequent and severe, with adolescent sickle cell disease patients reporting greater pain intensity than postoperative pediatric patients. 20% of youngsters have prolonged

post-surgical pain following major procedures. It is uncertain how often chemotherapy-induced peripheral neuropathy is in cancer patients. Acute lymphoblastic leukemia patients have a documented incidence of neurotoxicity of 3 to 13% (Liossi and Howard, 2016)

Eighty-six per cent of children hospitalized for surgical operations expressed pain in a 2014 study conducted at a big pediatric center. Patients with medical illnesses reported pain more frequently than surgical patients. Other studies have used data from 43 hospitals to examine the inpatient features of children with chronic pain, including demographics, pain frequency, and treatment. The general population of 3,752 children 0–18 years had a 0.16 percent prevalence of chronic pain and accompanying diagnoses such as psychogenic pain, reflex sympathetic dystrophy, or complicated regional pain syndrome. Because many children are not given a specific diagnosis of chronic pain during hospitalization, the authors concluded that the prevalence of 0.16 percent underestimated the number of children with chronic pain. However, chronic pain in children is becoming more common as a result of increased hospitalization (Baldridge et al., 2018).

However, it appears that there is still a gap between what we know and what we do. Researchers at large North American hospitals have During admittance to the hospital, 27–64 percent of kids were determined to be in discomfort. In children hospitalized for more than 24 h, the prevalence of moderate/severe pain was significantly higher compared to children admitted the same day . We found no significant correlation between moderate/severe pain and gender or age (Walther-Larsen et al., 2017).

The Global Burden of Disease 2013 Study found that across the largest 50 countries, there was a 2% prevalence of pediatric low back and neck pain and a 5.5 percent prevalence of migraines for the developing group. Among children in Malawi, 27% reported pain when they were referred for palliative care; in Indian children, 6.3% had persistent daily headaches; and 10% of

school-aged children reported chronic abdominal pains. An Indian study found that children with a history of stomach pain had a 23% chance of developing chronic pain. Children in two Sri Lankan schools were found to suffer from 35.2 percent gastrointestinal ache. Recurring stomach pain was found in 10–15 percent of school-aged children and up to 75 percent of teenagers in Colombia, with 21 percent reporting enough pain to interfere with their daily lives(Walters et al., 2018).

As many as 8 percent of young people in the United Kingdom and 67 percent of those aged 15 in Australia suffer from severe pain, respectively, according to a recent survey (Al Omari, 2016). In addition, in Brazil, the percentages of pain in cancer children are roughly 78% at diagnosis, 25% to 58% during therapy, and up to 90% in later stages of the disease (Chotolli and Luize, 2015). An alarming trend in children's hospitalizations is a persistently high level of clinically significant pain. Since so many people suffer from chronic pain, it has become a major public health concern (Walther-Larsen et al., 2017).

A Washington University study found that 27% of hospitalized children reported moderate to severe pain, and that those admitted to medical services had a considerably lower proportion of moderate–severe pain (13%) than patients admitted to surgical services (44%). The majority of children and adolescents suffer from moderate to severe pain, according to other studies. A study in Austria found that 25% of children who underwent pediatric surgery experienced moderate to severe pain 24 hours later. According to the results of yet another study conducted in France, 10.9 percent of children had post-surgical pain (Groenewald et al., 2018).

During their stay in the hospital, babies and children are subjected to a variety of uncomfortable and often painful procedures. According to Carbajal et al, the average number of unpleasant procedures done on neonates each day was 10; 79 percent of these procedures were performed without the use of specialized analgesics. According to a study by Johnston

et al. (2011), despite advances in NICU pain management since the late 1990s, the level of care for unwell newborns remained unsatisfactory at the time of the study. As many as 78% of the 3822 children studied by Stevens and colleagues had experienced at least one traumatic operation in the 24 hours before data collection, with an average of 6.3 procedures per child (Harrison et al., 2014; Stevens et al., 2011).

Similar findings have been made in other poor countries, particularly in Africa. African secondary school students, for example, reported a 43% frequency of low back discomfort among their peers. 81.0 percent of children admitted to a South African burns unit experienced significant pain and had to endure difficult procedures like changing bandages without the use of pain medicines or distractions. Additionally, 80.5% of Kenyan hospitalized children experienced some form of pain during their stay in hospital. (Amponsah,2020; Oduro et al., 2020;   van der Heijden et al., 2018; Huang et al., 2013).

2.10. Factors influencing on the children pain

Several factors have been postulated as contributing to suboptimal practices relating to healthcare professionals, patients (children and parents) and the organization (Dowden et al., 2014).

These factors are illustrated in Figure 2.4
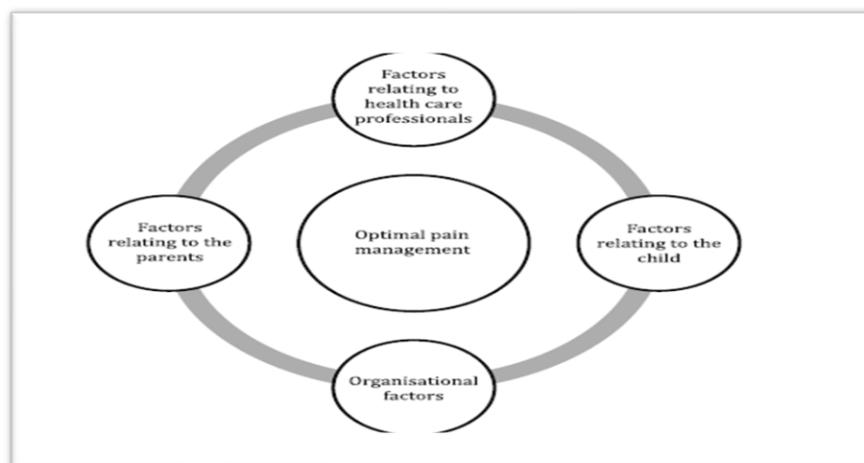
Figure 2.4 (Twycross et al., 2009)

2.10.1 Factors relating to nursing:

This set of factors encompasses variables that affect appropriate pediatric pain management relating to staff. Staff can be defined as all health care professionals involved in the care of the child, including: nurses, physicians, pharmacists, and allied health professionals. Some examples of this set of factors are: personal judgements or beliefs about pain; lack of knowledge about current pain practices; passing the responsibility onto the parent to alert the nurse when the child is in pain; and communication between health care professionals(Marshall, 2018).

The shortage of nurses and heavy workloads associated with caring for the critically ill patients limit the time given to the interaction between patients and nurses for adequate pain assessment and management. Other challenges reported in emergency situations include inability to administer medication until diagnosis is made (Deldar et al., 2018).

Children's pain management is influenced by their experiences, attitudes, and beliefs, according to the literature. In the pediatric context, for example, Hamers et al. looked at how novices (n ¼ 271), intermediates (n ¼ 222), and experts (n ¼ 202) assessed pain and made judgments about analgesic administration. They found that experienced nurses were the most confident and motivated to prescribe analgesics (Ely, 2009). Many studies have indicated that nurses possess a lack of knowledge regarding pain alleviation methods, which may hinder the application of such measures. Abu-Saad and Hamers' literature study also found that the nurse's decision-making was influenced by her own personal experience with pain. It was shown that nurses with children were more likely than those without children to deliver pain drugs more quickly. As a result, the nurses who had suffered severe pain or whose children had experienced such suffering, raised the possibility that insufficient pain treatment could lead to serious problems sooner (Bakir et al., 2022; Ljusegren, 2011; Olmstead, 2011; Pölkki et al., 2008).

2.10.2. Factors relating to children

This set of factors encompasses those related to the child that might influence appropriate pediatric pain management. Pain is a complex subjective phenomenon influenced by biological, psychological and social factors . Biological factors that can influence the pain a child experiences include: age, cognitive development, genetic makeup, and temperament. Psychological factors include fear and previous experiences of pain that may also be influenced by developmental stage. Lastly, social factors include culture, family learning, social relationships, and sex. All of these factors can contribute to how the child perceives pain . Other examples that have been identified in the literature include child's age, diagnosis, reluctance to report pain, refusing pain medication, and time since surgery (Faccioli et al., 2020).

Children's age, cognitive level, previous pain experience, temperament, coping techniques, gender, ethnic and cultural background all have an impact on how they understand and respond to pain. These features cannot be changed, but the nurse must be aware of their effects in order to provide better care for the child in pain. The way a youngster defines and understands pain is influenced by his or her age and cognitive abilities. As a child's age and cognitive development progress, so does his or her awareness of pain, coping techniques, and the impact of pain (Wuni et al., 2020)

The pain expectations, acceptance, and tolerance of children have an impact on their pain experiences. According to research comparing children's pain predictions and pain experiences, in general, younger children are less accurate than older children in predicting their level of procedural pain. A greater amount of post-operative discomfort was felt by children who had previously anticipated more pain (Manworren, 2010)

Characteristics of children: temperament and coping mechanisms One definition of temperament is the inherent psychological feature that predisposes a child to react in a specific way . This is a very constant trait that is linked to a child's pain tolerance. Distress behaviors were more common in difficult (poorly adaptable) children than in easy (adaptable to

new conditions) children. The more acute the youngster, the more postoperative pain drugs he or she received. Temperament does not appear to alter the actual level of pain, however, it does appear to have an impact on how children express their distress (Bowden and Greenberg, 2010; Manworren, 2010).

2.10.3. Organization factors:

This set of factors encompasses variables that may be present in organizations. Organizational factors include unit and organizational culture and are influenced by many contextual factors. These can include: leadership; culture; evaluation; resource allocation; formal interactions; informal interactions; structural or electronic resources; and organizational slack. Examples identified in the literature include: unit patterns of pain care; high workload; lack of time; insufficient supply of medication; and inadequate or insufficient medication orders (Li et al., 2018; Carr, 2008).

Busy units, inadequate staffing, limited time, inadequate staff nurse's training, reluctance to prescribe opioids, poor communication, lack of accountability, patient's attitude and health status are the commonly cited organizational barriers to adequate pain assessment and management (Toba et al., 2019).

2.10.4. Factors relating to the parents

This set of factors encompasses those related to parent(s) or the responsible caregiver(s) which include barriers such as: reliance on behavioral cues to assess child's pain; incorrect beliefs about the consequences of pain and pain medication; fears about the child developing addiction; and fears of the side effects of opioids (Riddell and Racine , 2009).

The availability and efficacy of modern treatments such as topical anesthetic creams, vapocoolant spray, and oral sucrose has contributed to decreasing pediatric procedure-related pain. Procedural pain treatment costs are not continuously 100% covered. Resource availability such as time,

equipment, cost, and staff training is a significant barrier to implementation of pain management policy guidelines among hospitals(Bice,2017).

Through surveys, retrospective record checks, and interviews with pediatric nurses, several impediments to successful pain treatment in hospitalized children have been identified. These include (a) a lack of assessment and intervention evaluation, (b) insufficient knowledge and attitudes about pain assessment and management, (c) fears of adverse analgesic side effects, (d) inability to overcome barriers to optimal pain management, (e) time constraints, and (f) patient, family, and nurse characteristics, such as age, gender, previous pain experience, surgical severity, post-operative day, personal values, beliefs, and attitudes about pain(Manworren,2010).

Other barriers include incorrect pain assessment and characteristics, the belief that symptoms are masked when treating pain, lack of understanding of analgesics and their coadjutants, fear of analgesic side effects, a lack of use of cognitive-behavioral techniques, the child's age and the information it provides, and, most importantly, a lack of resource time to develop the process. In the workplace, there is an imbalance in the nurse-patient connection, there is a lack of training on the subject, there is a lack of organizational support, there is a lack of professional autonomy, and there is a sense of impotence (Alghadeer et al., 2021).

There are reports of lack of child assessment, negative perceptions, poor documentation, and inappropriate use of analgesics as challenges to pain management by nurses worldwide . Some authors have attributed increased nursing workloads, communication gaps, lack of knowledge on POP management, and organizational change issues as the possible barriers to effective POP management (Menlah et al., 2018).

Moreover, as general there are different factors that effect on pain management Among children like: age, culture, their behaviors, diagnosis, Time since surgery, Non-compliance with nurses' suggestions for pain care,

reluctance to report their pain, and, child refusing pain medications (D'emeh et al., 2016) .

2.11. Pain assessment in children

Complete and accurate assessment of a child's pain can lead to better and more effective intervention (Potts and Mandleco, 2012). The first step in pain management is to conduct a thorough evaluation, which will help guide the selection of treatment options. It's easier to quantify acute pain than complex pain, which can be chronic, recurrent, or persistent (Hockenberry and Wilson, 2015)

Assessing a child's pain level is the goal of a pediatric pain assessment. Children's Initiative on Methods, Measurement, and Pain Assessment in Clinical Research (IMMPACT) recommends certain core domains to assess pain in children, including pain intensity, global judgment of treatment satisfaction, symptoms and adverse events, physical recovery, and emotional response. An awareness of the child's level of pain is critical to a successful treatment plan. A wide variety of pediatric pain scales exist, including behavioral measures, self-report scales, and multidimensional pain assessment instruments (Hockenberry and Wilson, 2018).

2.12. Assessment pain According to Developmental Level

2.12.1. Neonates and Infants

Since neonates and young infants lack myelinization of pain fibers in their central nervous systems, many clinicians in the past believed that they were unable to feel pain. Neonatal and babies may feel pain, according to new research, and ignoring their distress can have serious, long-term consequences. research on how babies and adults experience pain has shown some interesting findings: This may be the reason why infants have a lower pain threshold than older children and adults, as their nervous system regulation systems are still developing (McKinney et al., 2017).

Acute pain assessment in neonates and babies is difficult and relies heavily on behavioral and physiological signs. It's possible that a newborn is in pain if their behavior and sleep/activity habits suddenly alter. Crying, hand clenching, grimacing, brow wrinkling, fussiness, and restlessness are all signs of baby pain. Infants and children's facial expressions are thought to be the most reliable indicators of discomfort. Infants' reactions to painful operations are typically characterized by their facial expressions, quick latency to scream commencement, and a long initial cry cycle. It's possible that cries connected with pain sound different from those associated with other things like hunger or stress. This means that parents and nurses can tell the difference between an infant's typical cries and a cry for help (Bošković and Ličen, 2021, James et al., 2014).

2.12.2. Toddlers

The toddler in pain tends to cry longer than the infant. As verbal abilities become more advanced, the toddler can vocalize displeasure when a painful experience occurs. The toddler may ask for parents, use words that indicate discomfort, and even verbalize negative emotions about the nurse. The toddler may also try to delay the nurse's implementation of a procedure judged as painful. The older toddler can often localize the pain and point to the body part that hurts (McKinney et al., 2017; James, 2014).

Anger and terror can be seen in a toddler's facial expressions. In other cases, the youngster may avoid eye contact or display a melancholy expression. The child may revert to earlier, more familiar behaviors such as lying in a fetal posture on the parent's lap in response to pain and discomfort (Royal College of Nursing, 2009).

2.12.3. Preschool

Children in preschool exhibit a high degree of self-centeredness. With only the present in mind, individuals are unable to connect their agony with any positive outcomes, which can heighten their perception of their pain. Debriding an agonizing burn, for example, will not be understood by the

preschooler. An ability to accurately characterize pain's location and intensity is developed in this age group (McKinney et al., 2017).

Preschoolers often believe that pain is a punishment for anything they've done in the past. They are also afraid about genital mutilation. Preschoolers may deny having a surgical wound in order to avoid an invasive procedure like a pain medication injection. They may also scream and wriggle their way out of it. Thumb sucking and withdrawing from play activities are two ways that preschoolers may regress to earlier and more comfortable habits in the face of pain (Vakili et al., 2015).

2.12.4. Children of School Age

School-age children are able to define and measure pain, as well as link it to a specific bodily location. They're starting to see the point of undergoing grueling operations. They are afraid of bodily damage and cognizant of their own mortality. As a result, individuals may appear to be overreacting when they are ill or hurt. The school-age child, like children of other ages, retains memories of earlier suffering experiences, which influences how they respond to the present (McKinney et al., 2017; Pillitteri, 2010).

Children's perception of pain will differ depending on their age, gender, and cognitive ability. School-age children's pain can be accurately assessed using nonverbal and behavioral clues. The youngster may stand stiffly, retreat, or be seen sobbing softly. Students may later deny engaging in violent conduct such as pushing back against treatment or crying out in pain. Also, school-age kids may try to postpone or bargain for an unpleasant procedure in an effort to avoid it. When a school-aged child is in pain, regressive behavior is possible, just as it is with younger children (Powell et al., 2010).

2.12.5. Adolescents

Adolescents are able to think abstractly and perceive the link between events. It is possible for them to accurately describe and quantify the level

of pain they are experiencing and their sentiments about it. They can also talk about pain-management techniques. It is possible for them to sense and comprehend physical, emotional, and mental discomfort. Adolescents may have these abilities, but they may not use them. As they transition from infancy to maturity, adolescents are frequently befuddled by concerns of power and self-awareness. Pain-related regression can also happen at this age (Lumley et al., 2011). Anxiety is often suppressed by adolescents, who believe that people are focusing on their actions and therefore don't feel the need to express themselves. Patients also may not report pain because they assume that their nurses are aware of their discomfort and so anticipate to receive pain medicine at the time they need it, rather than when they ask. Adolescents are less likely to show visible indicators of discomfort than younger youngsters. You can also experience a decrease in your ability to move around as well as a fall in your mood. Adolescents in hospitals often express their discomfort with phrases such as uncomfortable (Shaygan and Jaberi, 2021).

When in front of peers, adolescents may hide or minimize their pain symptom display. Teens are typically very verbal about their pain and communicate in detail various aspects of the pain experience. They may show pain through facial features and body posturing. They may be tearful or act stoically. Pain assessment is often best accomplished using the Adolescent Pediatric Pain Scale, as it allows for a more nuanced expression of a teenager's experience (Linnard-Palmer, 2017).

2.13. The Role of Nurses in the Assessment of Pain

Children's pain is assessed by a wide range of healthcare specialists, both directly and indirectly. Nurses, on the other hand, are the ones who spend the most time with patients, especially children. In this way, they are in a unique position to detect children who are experiencing pain; to accurately diagnose the pain and its effects on the child and family; to relieve pain using available resources; and to evaluate the success of those efforts

Nurses will benefit from the theoretical information in this chapter, which will help them to accurately assess children's pain (Twycross et al., 2009).

2.14. Pain Assessment Tools

Children's pain is measured using a variety of scales and instruments. After a pain assessment tool is designed, it must be evaluated for validity (accurately measures the concept it was designed to measure) and reliability (consistent results are obtained when measured by the same rater or other raters). All of the following pain assessment tools have validity and reliability established (Ball et al., 2017).

A child's age, as well as the type and degree of the pain, must all be taken into consideration while developing an assessment of pain. A child's pulse or blood pressure may suggest that he or she is under stress, but they aren't the best indicators of how much pain he or she is experiencing. The most reliable way to gauge a child's level of pain is to have the child describe it to you (self-reporting on a pain rating scale) (Pillitteri,2018).

Pain rating scales for children have been developed in a variety of ways. Due to the wide variety of children and types of pain they experience, no single treatment has been shown to be better than the rest. An alternative to forcing children to learn a variety of assessment methodologies is to use a widely accepted and well-proven scale. Use just the scale's instructions provided (Popowicz et al., 2020)
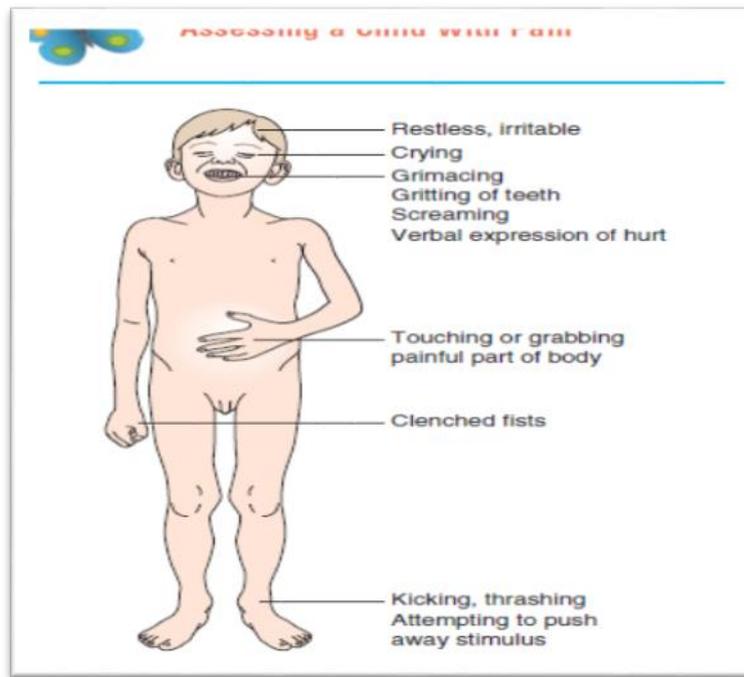
Figure (2.5) Pain assessment in children (Pillitteri, 2018).

2.15. Scales for assessing the severity of pain

Children's pain evaluation scales have been established and proven to be effective and trustworthy. There are three different types of pain assessments: 1) behavioral (what youngsters do); 2) physiologic (how their bodies react); and 3) self-reports (what children say) (Cohen et al., 2008).

2.15.1. Behavioral Tools

The tools developed to assess pain in infants and young children generally use behavioral indicators of pain. A wide range of specific expressive behaviors have been identified in infants and young children that are indicative of pain: • individual behaviors (e.g. crying and facial expression); • large movements (e.g. withdrawal of the affected limb, touching the affected area, and the movement or tensing of limbs and torso); • changes in social behavior or appetite; • changes in sleep/wake state or cognitive functions (Sekhon et al., 2017).

2.15.1. a. COMFORT Scale

Alertness, calmness or agitation, respiratory response, blood pressure, heart rate, muscle tone, physical movement, facial tension. Recently modified to include crying for non-ventilated infants. Intended for use in children 0 to 17 years of age but has been used in children 0 to 18 years on ventilator or in critical care (only validated tool for this purpose) Well-stablished evidence of reliability and validity; however inconsistent ability to detect change. Score 8 items from 1–5 with total score ranging from 8 to 40 Administration time is about 3 minutes 2 hours for training to use tool (low/ medium clinical utility) (Maitra et al., 2014).

2.15.1. b. Nonverbal Children's Pain Behavior Scales :

To quantify pain in nonverbal children, physical and behavioral indications are used, with the nurse's observation of the child's behavior being the most important factor.

In nonverbal children with severe cognitive deficits, effective pain management is extremely critical. These children frequently (1) have painful medical conditions, (2) require painful procedures and medical interventions, (3) require frequent hospitalization and care from physicians who may not know them well, and (4) are unable to verbally convey their suffering. Because nonverbal children with significant cognitive disabilities show pain in a variety of ways, a pain tool that allows parents to collect and document their knowledge of their child's pain expression is very desirable (Solodiuk and Curley, 2009)

2.15.1. c. The Neonatal Infant Pain Scale

Up to 6 weeks after delivery, this device is used to quantify procedure pain in preterm and full-term neonates. All of the baby's bodily movements and facial expressions, as well as his or her cry, respiration, and arm and leg positions, are recorded. Inter-rater reliability and validity are both excellent with this tool (Johnston et al., 2017).

Based on the Children's Hospital of Eastern Ontario Pain Scale, the Neonatal Infant Pain Scale (NIPS) was developed to measure pain in children aged one to seven years old. It measures two items each, with scores of 0 or 1, for each of five behavioral aspects (facial expressions, crying, arms, legs, and arousal level) and one physiological aspect (breathing patterns) (except for the crying factor, which comprises three items and is scored on a scale of 0 to 2). Each item has a short operational definition. With a total score of 0 to 7, the scale indicates that the narrator is experiencing discomfort. Health care providers who work with infants who have been exposed to unpleasant stimuli will find the NIPS to be an easy instrument to grasp and put to good use (da Motta et al., 2015).

Neonatal Infant Pain Scale		
	Pain Assessment	Score
Facial expression • Relaxed muscles • Grimace	Restless face, neutral expression Tight facial muscles, furrowed brow/chin/jaw	0 1
Cry • No cry • Whimper • Vigorous cry	Quiet, not crying Mild moaning, intermittent crying Loud screaming, rising, shrill, continuous crying	0 1 2
Breathing pattern • Relaxed • Change in breathing	Normal or usual pattern of breathing Indrawing of chest, irregular breathing faster than normal, gagging and breath holding	0 1
Arms • Relaxed/ Restrained • Flexed/ Extended	No muscular rigidity, occasional random movements of arms. Tense, straight arms, rigid or rapid extension/ flexion.	0 1
Legs • Relaxed/ Restrained • Flexed/ Extended	No muscular rigidity, occasional random movements of legs. Tense, straight arms, rigid or rapid extension/ flexion.	0 1
State of arousal • Sleeping/ awake • Fussy	Quiet, peaceful sleeping. Alert, restless/thrashing.	0 1

Maximum pain score – 7
Minimum pain score — 0

Figure 2.6 (Leifer and Keenan-Lindsay, 2019)

2.15.1. d. FLACC:

Critically ill patients often cannot self-report their level of pain because of changes in cognition or physiological status or the presence of an endotracheal tube. Because of this inability, these patients have been excluded from clinical pain trials, leaving the patients vulnerable to the under treatment of pain. In the absence of self-reports, behavioral observations have been used to detect and quantify pain in children, cognitively impaired

patients, and adults. However, testing of observation pain tools in adult critical care patients has been limited. Several simple tools, including the Face, Legs, Activity, Cry, Consolability (FLACC) Behavioral Scale . have been validated for use in acutely ill children, but limited data are available on pain assessment in critical care settings.9 Identification and routine use of a simple yet valid and reliable observational tool to assess pain in these settings are necessary to ensure adequate pain management in critically ill patients (Voepel-Lewis et al., 2010).

FLACC scale (Face, Legs, Cry, Activity Consolability scale)	Score
Face 0- No particular expression or smile 1- Occasional grimace or frown, withdrawn, disinterested 2- Frequent to constant frown, quivering chin, clenched jaw	
Legs 0- Normal position or relaxed 1- Uneasy, restless, tense 2- Kicking or legs drawn up	
Activity 0- Lying quietly, normal position, moves easily 1- Squirming, shifting back and forth, tense 2- Arched, rigid, or jerking	
Cry 0- No cry (awake or asleep) 1- Moans or whimpers; occasional complaint 2- Crying steadily, screams or sobs, frequent complaints	
Consolability 0- Content, relaxed 1- Reassured by occasional touching, hugging, or being talked to; distractile 2- Difficult to console or comfort	
Total score (0-10)	

Figure 2.7. show FLACC scale (Moutte et al., 2015)

2.15.2. Measurement of pain based on physiology

Children and infants who are unable to vocally convey their feelings can benefit from the physiological measurement of discomfort. It allows for the evaluation of pain in an indirect manner, such as the presence and intensity of the sensation. The sensation of discomfort is common when major physiologic changes are taking place. Cortisone, oxygen transcuteneous in the bloodstream, endorphin concentrations, and sweating palms are just a few of the physiological parameters that can be measured. It

is the level of general discomfort that these assessments reveal in children who are suffering pain, rather than where the pain is actually located (Hossain, 2010) .

Heart rate was the most commonly utilized metric for assessing physiological discomfort in the research examined. Some studies showed no change in heart rate in response to pain, while others supported the use of heart rate and behavioral variables, such as sobbing. Oxygen saturation, blood pressure, and respiratory rate are examples of physiological measurements that lack sensitivity and specificity and so can't be used independently. These tests may be able to detect pain, but they are unable to quantify it, making them useless for assessing chronic pain. The hunt for a true and accurate biological or physiological marker for measuring baby pain must continue. Considering that most neonates in critical care are suffering from chronic pain rather than acute pain, further research is needed into the methods of acute pain assessment in the intensive care context (Raeside, 2011).

2.15.3. Scales for Self-Reporting Pain:

The Faces Pain Scale–Revised (FPS-R) and the Color Analog Scale are two common self-report assessments of pain in children (CAS). Both scales have been used in both clinical and research settings, including the pediatric ED (Tsze et al., 2013).

To use these pain scales, a kid must be able to express their level of discomfort to the nurse in a way that is understandable to them (von Baeyer, 2008).

2.15.3.a. The Oucher Scale:

It is composed of six photos of a white child's face, ranging from no hurt to the worst hurt you could possibly experience. As well, there are scales for African American and Hispanic children that go from zero to 100. Scale of the photograph. Explain changes in pain intensity by pointing to each photograph. Score each image from 0 to 5, with the bottom image receiving

a score of 0. General: Recall and rate previous pain experiences to get a feel for Oucher (e.g., falling off bike). The child points to a number or a photograph that depicts the level of pain associated with the experience. Ask the child to get a current pain score (Hockenberry and Wilson, 2018).

For children 3-13 years old. Use numeric scale if child can count off any two numbers or by 10s Determine whether child has cognitive ability to use photographic scale; child should be able to rate six geometric shapes from largest to smallest. Determine which ethnic version of Oucher to use; allow child to select version of Oucher or use version that most closely matches physical characteristics of child (Perry et al., 2017).

2.15.3. b. The Faces Pain Rating Scale:

Children as young as three years old can use a set of six cartoonlike faces with attitudes ranging from happy to sad. The nurse explains the significance of each face and asks the child to select the one that best reflects their current discomfort (Gulur et al., 2009).

Depending on the model used, this scale features a sequence of six or seven cartoonlike faces with expressions ranging from smiling (or neutral) to crying. For children aged 3 to adolescence, the Wong-Baker scale is often utilized. Following explanations of each face's meaning, the youngster chooses the face that most closely resembles the agony he or she is experiencing. The nurse should not utilize the instrument to assess the child's pain level by comparing it to his or her facial expression. Older children can rate their pain using the phrases linked with the tool. For measuring pain severity, the Faces Pain Rating Scale has strong validity and reliability (Zielinski et al., 2020).

Teach the kid to use the Faces Pain Rating Scale by pointing to each face and describing the degree of pain felt with the phrases under the picture. Then ask the child to select a face that best reflects their level of pain. Utilize the number just beneath the face you've chosen to determine the degree of suffering (Huang et al., 2012).
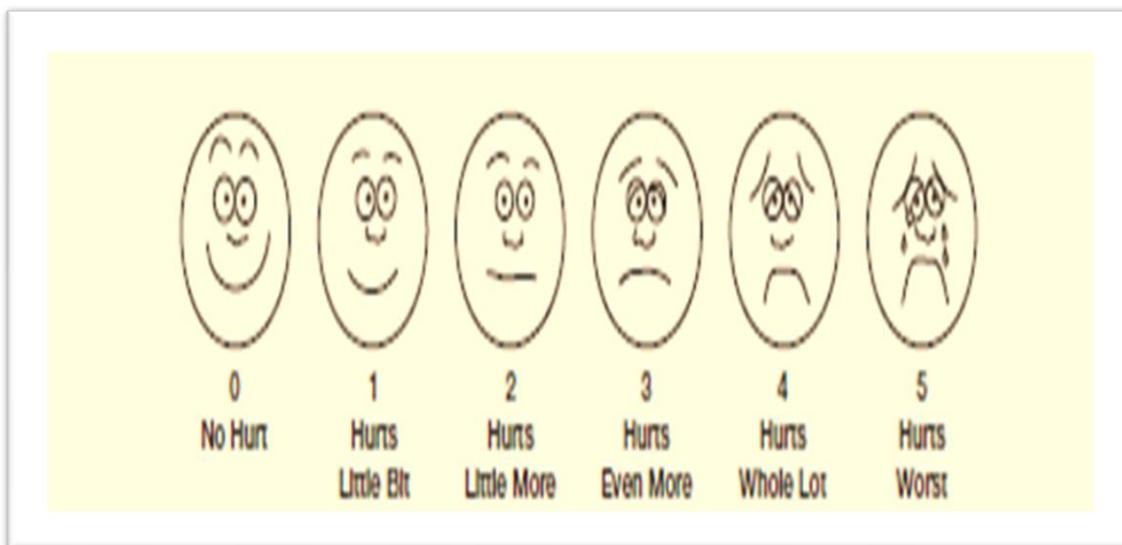
Figure 2.8. show faces scale (Ball et al., 2017).

2.15.3.c. The Visual Analog Scale or the Numeric Pain Scale:

With pain, a single 10-cm horizontal or vertical line is drawn. descriptions at either end (no pain, greatest possible pain), as well as markers and numbers at each cm along the line (Delgado et al., 2018).

A horizontal or vertical line with indicated endpoints is used in visual analog and numeric scales. The end points of a visual analog scale are labeled as no pain and greatest agony. The endpoints of a numeric scale are usually 0 and 10, which represent no pain and the severe suffering, respectively. The scale is explained to the youngster by the nurse. The youngster draws a line on the visual analog scale that best depicts the intensity of pain. The nurse then calculates the pain score by measuring the distance between the "no pain" endpoint and the child's mark. The nurse asks the child to choose a number on a numeric scale that best describes his or her level of discomfort. For children aged 7 and up, the visual analog scale is adequate. Children aged 8 and up should use the number scale. Even if a young child can count and

provide numbers on a scale, they have not yet established a quantitative grasp of the numbers (Dijkers et al., 2010).
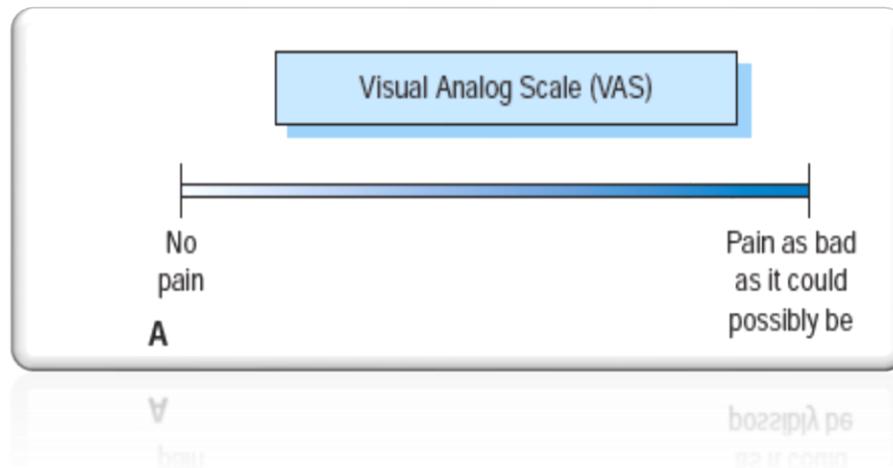
figure 2.9. Visual analog scale (Ricci and Kyle, 2013).
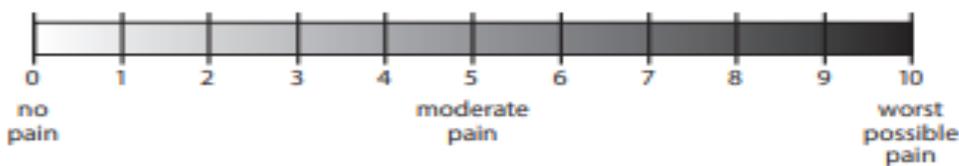
Figure2.10. show Numeric Rating Scale (NRS) (Zieliński et al., 2020)

2.15.3.d. The Poker Chip Tool:

Four checkers or poker chips are used to determine the severity of the discomfort. The child is asked to choose the number of chips that best represent the severity of his or her suffering, with one chip representing little discomfort and four chips signifying the most severe discomfort (Thirion et al., 2015).

To quantify pain, this technique uses four red poker chips. (A white chip represents no discomfort in some versions). The red chips symbolize hurtful bits. One chip causes a small amount of pain, whereas all four chips cause the youngster the maximum pain. The youngster is instructed to select the amount of chips that correspond to how much discomfort he or she is in. The validity of the poker chip tool has been demonstrated by high correlations in pain ratings assigned using the PCT and the Hurt Thermometer, as well as the PCT and the Oucher tool, in children aged 3 to

5 years. However, according to one study, the Faces scale was favored by most children, nurses, and parents over the PCT (Brand and Al-Rais, 2019).

2.15.3.e. The Word-Graphic-Rating Scale:

Graphic Rating Scale (GRS) – Very similar to the VAS, the GRS has measurement lines with words or numbers between the extreme ends of the scale(Breivik et al., 2008).

Along a horizontal line, there are words describing rising pain severity. The kid draws a line on the paper that corresponds to the level of pain he or she is experiencing. To quantify discomfort and keep track of the score, use a millimeter ruler (Weber and Kelley, 2013).

Place a straight, up and down mark on this line to show how much pain you have.

| No Pain | Little Pain | Medium Pain | Large Pain | Worst Possible Pain |
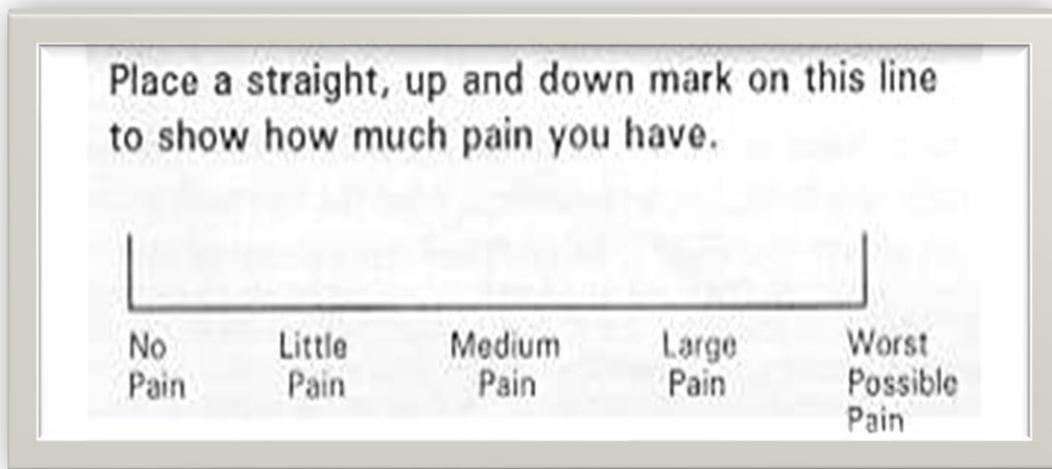
Figure 2.12. show The Word-Graphic-Rating Scale(Weber and Kelley, 2013).

Finally, True, nurses must inquire, observe, and utilize proper pain assessment measures in order to conduct a comprehensive examination and treatment of children's discomfort Nurses must also be familiar with the components of various pain assessment measures as well as the concepts of pediatric pain evaluation. Pain management will be poor documented if there isn't a full assessment (Sedrez and Monteiro, 2020).

Regular assessment and documentation facilitates effective treatment and communication among members of the healthcare team, patient and

family. Pain is considered to be the fifth vital sign and, therefore, should be assessed and documented along with the other vital signs. Putting mechanisms in place that make documentation of pain easy for clinicians helps ensure consistent documentation. Standardized forms/tools for the documentation of pain allow for the initial assessment and ongoing re-assessment (e.g. admission assessment forms, vital signs chart(Araujo and Romero, 2015). They can also be used for the documentation of the efficacy of pain-relieving interventions. Including pain intensity as part of the vital signs record allows for pain to be assessed, documented and taken as seriously as other vital signs (Glasper and Richardson, 2010).

2.16. Pain management

Pain management is defined as the relief of pain or a reduction in discomfort to a level of comfort acceptable to the patient. Pain management in children is complex and complicated, especially during childhood; as a result, pain therapy must be multi-modal, incorporating both pharmacological and non-pharmacological methods (Bennett, 2019).

2.16. 1. Stages of pain management in children:
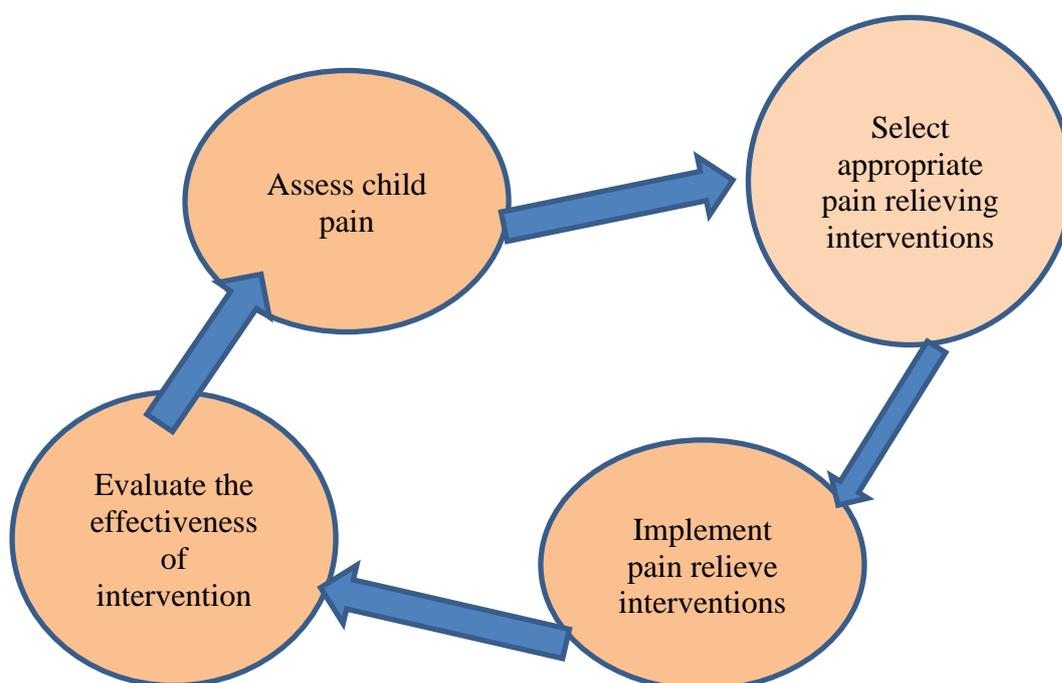
Figure 2.13. show Stages of pain management in children: (Twycross et al., 2015)

2.16.2. Pharmacologic methods:

Pain management requires an individualized and developmentally appropriate approach using both pharmacologic and non-pharmacologic regimens . The patient and family are integral to the development of a pain management plan . Consideration is given to all patient and family preferences when determining therapeutic treatment modalities .The patient and family must receive education specific to appropriate pain management strategies (Habich et al., 2012).

Pain that is not eased creates suffering to the patient or to the person who is in pain. Nurses in the field must be more aware of the appropriateness of their analgesic administration, the value of children's self-reports of pain, and the limitations of relying on behavioral manifestations to evaluate pain intensity. The fact that some nurses continue to mistreat pain patients by either not administering pain medicine on a set schedule around the clock as directed by physicians or by administering less than 40% of the medication ordered is cause for alarm. Non-opioid analgesics include acetaminophen (paracetamol), ibuprofen, naproxen, diclofenac, and ketorolac, both over-the-counter and prescription medications are available. They are effective in treating minor pain when used alone, but they must be coupled with other medications to treat moderate to severe pain. These medications have a ceiling effect, thus they're best used in combination with opioids to reduce the opioid dose and consequently the negative effects (Vincent, 2008).

Medications can be administered orally, intravenously, intramuscularly, mucosal, subcutaneously, transcutaneous and rectally. The exact mode of administration will depend on the available resources and on the training and experience of the caring personnel. A multimodal approach, using more than one method, increases the success rate (Manyazewal, 2017).

The current pharmacologic treatment protocol of pain for children is primarily extrapolated from adult intervention without any evidence of value in children . High-quality pediatric experimental researches are needed to

demonstrate efficacy and safety of analgesics for innumerable pain conditions in children to avoid continued use of analgesics empirically (Kahsay, 2017). The development of age appropriate pain assessment tools leads to improvement in the management of pain in children in the last two decades. It is important that pain be reassessed soon after any pharmacological intervention to guide further interventions and to ensure the achievement of pain relief ensured by reassessment of pain regularly after any pharmacological intervention (Wong et al., 2012).

Recent studies show that more development has been done in the understanding and comprehending the physiological effect of neonatal pain and the efficacy of pharmacological and non pharmacological procedures . With the help of analgesic, neonatal Pain may be effectively managed. Local anesthetics anxiolytics and sedatives often alleviate pain and manage the heart rate and blood pressure (Pölkki et al., 2010).

2.16.2.1. Medications that are used to treat pain

Both non-opioid and opioid analgesics are types of analgesics that are used to treat pain. The use of anesthetics is another option. When standard analgesics fail to relieve pain or reduce anxiety, adjunctive medicines such as sedatives and hypnotics might be employed (Watson, 2020).

2.16.2.1.a. Non-opioid Analgesics

Non-opioid analgesics include acetaminophen and nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen, ketorolac, naproxen, indomethacin, diclofenac, and piroxicam . For illnesses such as arthritis, joint, bone, and muscular pain, as well as headaches and dental pain, these medicines can be used to help alleviate mild to moderate pain. Acetaminophen, probably the most widely known non-opioid analgesic, also is commonly used to treat fever in children, as is ibuprofen (Blondell et al., 2013).

Mild to moderate pain is treated with non-opioid analgesics Using non-opioid analgesics in conjunction with opioid analgesics can lower the

amount of the opioid medication needed in severe pain. For this reason, the selection criteria, effects, and probable side effects of non-opioid analgesics are identical for children and infants to adults (Carter et al., 2020).

2.16.2.1.b. Opioid Analgesics

Oral, rectally, intramuscularly, or intravenously, opioid analgesics are commonly prescribed for moderate to severe pain. Fentanyl, for example, can be delivered intravenously, intradermally, or transmucosal. All other opioid agonists are measured against the gold standard of morphine, making it the medicine of choice for severe pain (Pathan and Williams, 2012).

Administering opiate analgesics to infants and toddlers is a common pharmacological treatment for acute pain (particularly postoperative pain) (Vittinghoff et al., 2018).

Opioid analgesics can be given in a variety of ways. including oral, sublingual, rectal, nasal, subcutaneous, transdermal, intravenous (I.V.), and intraspinal. The pharmacodynamics and pharmacokinetics of opioids in young children have been extensively studied, although many practitioners continue to resent giving them despite this knowledge (Meadows-Oliver, 2014).

2.16.2.1.b.1. Fentanyl, morphine, and pethidine

Opioids come in a wide variety of forms, but there isn't enough data to suggest that one type is preferable to another. Morphine and Fentanyl are two of the most regularly prescribed medications for newborns. For long-term use, pethidine should be avoided because of the possible accumulation of its poisonous metabolite, nor-pethidine, which may cause seizures. The risk of nor-pethidine forming in newborns is lower than in adults, and it is more likely to occur in newborns with renal failure or who get higher doses of pethidine than is indicated. For moderate to severe pain, opioids are the most usually prescribed intravenous medication (e.g. in the post-operative setting) (Abdolrazaghnejad et al., 2018). The dosage of opioids that are most helpful at relieving pain should be established based on the severity of a

child's discomfort. If opioids are projected to be used for an extended period of time, children should be given a stool softener and a stimulant laxative as prophylaxis (Schellack and Matimela, 2016).

2.16.2.1. b.2.Opiate use in neonates and children

The National Service Framework for Children and the World Health Organization (WHO) both highlight reality that health care professionals are reluctant to prescribe or deliver opioids due to fears regarding addiction and side effects, in particular respiratory depression. In fact, in most healthy children, respiratory depression is uncommon (Comer et al., 2015).

2.16.2.1.c. Coanalgesics

Opioids can be used alone or in conjunction with coanalgesics and adjuvant analgesics to control pain symptoms and opioid side effects. Although diazepam (Valium) and midazolam (Versed) are commonly used to ease anxiety, create drowsiness, and provide amnesia, they are not analgesics and should only be taken in conjunction with analgesics. Neuropathic pain adjuvants such as amitriptyline, imipramine, gabapentin, carbamazepine, and clonazepam can also be treated with tricyclic antidepressants and antiepileptics, respectively (Hockenberry et al., 2016).

2.16.2.1.d. Patient-controlled analgesia (PCA)

Those aged 5 and up have shown positive results. I.V. PCA can be safely administered to children under the age of five, as well as to those who have a developmental delay, with the help of parent-controlled analgesia (Cheng et al., 2020).

Dosages of specific drugs used in pediatric pain Control (always follow institutional polices and accepted formularies)

Drug	Dosage	Frequency of Dosing
Acetaminophen	10–20 mg/kg PO	Every 4–6 hr (do not exceed five doses in 24 hr)
Ibuprofen	5–10 mg/kg	Every 4–6 hr
Morphine	0.05–0.2 mg/kg, IV	Every 2–4 hr
Codeine	0.5–1 mg/kg PO	Every 4–6 hr
Oxycodone	20–30 mg PO	Every 3–4 hr
Hydrocodone	30 mg PO	Every 3–4 hr
Tylenol with Codeine	Follow institutional policy	Follow institutional policy
Meperidine	1–2 mg/kg, intramuscular (IM)	Every 4–6 hr
Methadone	0.1–0.2 mg/kg PO	As ordered

Figure 2.15. Dosages of specific drugs used in pediatric pain Control (Linnard-Palmer and Coats, 2016)

2.16.3. Non-pharmacological methods:

A number of physical, cognitive behavioral, and lifestyle pain management treatments are used in non-pharmacological approaches to pain management. Non-pharmacological strategies have been utilized by nurses for many years to help patients manage pain. Even though controlled, blinded studies cannot verify its efficacy, anecdotal reports back it up (patients saying the methods help). Chronic pain can be alleviated with the use of cognitive methods such as deep breathing and imagery. To alleviate pain by manipulating the body's internal mechanisms, physical treatments like massage and positioning are used. Heat and cold application are also incorporated as part of the physical therapy approach (Tick et al., 2018, El Geziry et al., 2018). According to current studies, the most prevalent non-pharmacological approaches to relieve pain are:

Distraction is the most frequent intervention used in the emergency department to guide children's attention away from the painful stimuli and

reduce pain and anxiety. It is most effective when adapted to the developmental level of the child . Distraction techniques are often provided by nurses, parents or child life specialists (Srouji et al., 2010)

The following are examples of nonpharmacological pain strategies for children:

1- Distraction/diversion (toys with lights or movement, video, computer games, iPad or tablet, choices, focus on dialogue or topic),

2- Comforting touch (stroking, rubbing, massage, cuddling, holding, rocking)

3- Tactile comfort (heat, cold, ice, transcutaneous electrical nerve stimulation (TENS), Buzzy)

4- Controlled breathing (bubbles, blowing, breathing exercises)

5- Relaxation (progressive muscle relaxation, breathing exercises, music)

6- Psychology – requiring training (guided imagery, biofeedback, music therapy, cognitive behavioral therapy (CBT), hypnosis

7-Strategies for babies – (holding, rocking, sucrose, breastfeeding, and non-nutritive sucking)   (McNair et al., 2019; Davis, 2017)

Effective pain management in children requires knowledge of both no pharmacological and pharmacological methods. Such no pharmacological methods as distraction, relaxation, guided imagery, massage, thermal therapy, transcutaneous electrical nerve stimulation (TENS), rocking, pacifiers, therapeutic play, hypnosis, and music are widely used in alleviating pain in children of different ages. Therapeutic massage and humor have also been recommended for this purpose. (Salanterä et al., 2008).

For pain treatment, complementary therapies are non-pharmacological approaches that might increase the analgesic impact and potentially decrease their dosage. When the youngster is experiencing low levels of discomfort, one or more of these approaches may be sufficient (Thomson et al., 2019).

1. Infant-specific interventions

2. Containment: creating a safe space through the use of blankets and

3. positioning or through swaddling

4. Nonnutritive sucking: use of a pacifier (with or without sucrose)

5. Kangaroo care: providing skin-to-skin contact by holding infant against nurse's or parent's (James et al., 2014).

2.16.3.1. Bio behavioral Strategies (Non-pharmacologic) and Comfort Interventions

In the past, nonpharmacologic pain management and comfort methods were seen as primarily the responsibility of the nursing profession. Complimentary and alternative medical terminology generally refers to these biobehavioral treatments that are already commonplace. However, analgesics are not a substitute for these therapies. There should be no distinction made between pharmacological and non-pharmacological treatment options when describing these approaches. This type of treatment provides coping methods that may reduce pain and boost comfort. Examples include cognitive–behavioral therapies that can modify one's perception of a painful sensation (Bowden and Greenberg, 2010).

Preventative measures should be taught to children as soon as possible in order to lessen their pain. A child may still require assistance using an intervention even after learning how to do it on their own. Using the intervention again after the operation provides the youngster an opportunity to recover, feel in control, and cope better. A number of studies have demonstrated the effectiveness of nonpharmacologic analgesia in neonates, including as confinement, positioning, nonnutritive sucking, and kangaroo holding. Positioning and blanket rolls help to keep things contained (Perry et al., 2017).

2.16.3.1.a. Nonnutritive sucking

The use of a pacifier lowers the behavioral, physiological, and hormonal responses to pain caused by procedures such as heel punctures, venipuncture, and vaccine injections (Mehrnoush et al., 2013).

2.16.3.1.b. Distraction

Distraction is the process of diverting a child's attention away from the source of their discomfort or fear by including them in an enjoyable activity. Teach the parent how to be a distraction teacher and how to use distraction activities that are developmentally appropriate. Do not presume that a kid can be distracted if he or she is in significant pain; this is a false assumption (Graham and Reynolds, 2013).

2.16.3.1.c. Guided Imagery

Imagery is a relaxation technique in which words, sounds, etc., are used to evoke positive mental images, feelings, and thoughts.

Imagery provides distraction and reduces the perception of pain by eliciting descending signals from the brain that can help block the pain signals(Kavuma, 2017; Khan and Weisman, 2007)

Figure 2.17. Guided Imagery (**Kavuma, 2017)**

2.16.3.1.d. Relaxation Techniques

Muscle tension and anxiety can be relieved through relaxation , as can be as simple as holding an infant or young child closely while stroking the child or speaking in a soft soothing manner, or having the child inhale and exhale slowly using rhythmically controlled deep breathing. Eventually the exercises work through all body areas, leading to relaxation of the entire body (Demir, 2012).

2.16.3.1.e. Breathing Techniques

Breathing techniques Practicing calm breathing can help to relax muscles that are tensed because of pain or anxiety.

• Have your child try belly breathing by placing one hand on their belly and one hand on their chest. As they take a deep breath in, they should see their hand raise with their belly and the hand on their chest stay still.

• Alternatively, try 4-7-8 breathing: inhale for a count of 4, hold for a count of 7, and then exhale for a count of 8 (Mohiuddin, 2019).

2.16.3.1.f. Sucrose Solution

Oral sucrose solution may exert its analgesic effects through endogenous opioid pathways or via an increase in dopamine and acetylcholine . However, the evidence for pain relief is conflicting. Sucrose also prevented a decrease levels of brain derived neurotropic factor, which occurs during chronic pain (McClafferty, 2019).

2.16.3.1.g. Breastfeeding

Suction of the mother's breast has been found to lessen pain responses in healthy infants undergoing painful procedures (such as venous and heel puncture). Breastfeeding is widely regarded to be useful as an intervention for acute pain relief in neonates, and this is due to a variety of variables (skin-to-skin contact, sucking, odor and taste of breast milk). Breastfeeding combines all of these factors and is recommended for newborns undergoing acute pain procedures (Harrison et al., 2016). Breastfed neonates were compared to newborns who just got maternal lap during blood collection in a Brazilian study. Breastfeeding was found to be useful in lowering pain in babies at term. Preterm infants do not have the same level of effectiveness. Nursed or pacifier-fed newborns between 30 and 36 weeks of gestation were randomly assigned to one of two groups: those who were breastfed or those who were given a pacifier during blood collection. When breastfeeding was paired with a painful operation, however, there was no immediate deleterious effect on the neonates' capacity to breastfeed. The Premature Infant Pain

Profile (PIPP) scale was used to compare The effectiveness of administering expressed breast milk against glucose in reaction to discomfort in late preterm newborns during heel puncture was found to be 25%. The data show that expressed breast milk has a 25% lower impact than glucose (Motta et al., 2015).

2.16.3.1.h. The use of heat and cold

Heat and cold have varied effects on pain-related physiologic systems. Vasoconstriction reduces blood flow and the synthesis of pain-producing substances such as histamine and serotonin. Furthermore, pain transmission across peripheral nerve fibers is diminished. The heat causes vasodilation, which increases blood flow to the affected area. It also removes chemical substances that activate nociceptive fibers and lowers nociceptive activation. Heat can also activate endogenous opioids, which mediate the pain response (Nurcan and Karadag, 2015; Ricci and Kyle, 2009)

2.16.3.1.I. Facilitated tucking and swaddling

When the lower extremities are bent and the upper limbs are aligned with the midline of the bent arm, the hand is placed near the mouth, it improves physiological and behavioral stability. Wrapped in a nest or blanket, preterm babies cry less, sleep better and have less heart rate changes when unpleasant operations are carried out on them. In order to compete with painful stimuli, the central nervous system has to receive a steady stream of impulses from a secure yet mobile confinement system. This can help regulate pain perception and facilitate self-regulation in less painful processes. Pirlotte et al (2019) stated that a baby can be swaddled if he or she is well-monitored and clinically stable enough. To counteract the negative effects of pain and stress, swaddling provides a constant and gentle stimulation to the body's proprioceptive, tactile, and temperature senses. Using it before any treatment or keeping it on for the majority of the time will be more beneficial (Obeidat et al ., 2009).

2.16.3.1.J. Cutaneous Stimulation

- Rub affected area in a consistent manner.

- Apply ice or heat as warranted and desired to affected area or contralateral area.

- Apply consistent gentle pressure to site of pain.

- Use of a TENS (transcutaneous electrical nerve stimulator) also possible

Useful for all age groups as tolerated. Combining techniques (i.e., heat and rubbing) is of maximum benefit (Potts and Mandleco, 2012).

2.16.3.1.K. Hypnosis

Focused, narrowed attention and an altered state of consciousness that facilitates relaxation. Used in association with painful procedures and treatments, postoperatively, or for chronic pain. Hypnotists receive special training; children can be taught self-hypnosis. Nursing care of children principle (James et al., 2013).

2.16.3.1.L. Biofeedback

The ultimate purpose of biofeedback is to teach the kid to take control of his or her own bodily functioning. When a child is receiving treatment for a medical condition, he or she is taught how to use a device that monitors changes in muscle tone or physiologic data, such as blood pressure or pulse rate (Kyle, 2008).

2.16.3.1.M. Acupuncture

Body acupuncture and pain management is well known with the spinal pain pathways being recruited for attenuation of pain signaling in needle acupuncture. However, the non-invasive approach (no needling modalities of acupuncture such as low-level laser and magnet application), is more autonomically driven to gain direct access to central pain control centers . Neuroimaging studies have confirmed the re-regulatory capacity of acupuncture centrally (Mangat et al., 2018).

2.16.3.1.N. Therapy with the use of music.

Music therapy is the practice of using music to alleviate symptoms or improve well-being, and it has even been shown to be beneficial for premature babies. It can help relieve pain because it is both comforting and distracting. If a child is in extreme pain, he or she may "blast" music because they need the distraction to help them get through the pain (Pillitteri, 2018).

Figure 2.21. Therapy with the use of music. (Smith and Shirley Waugh, 2009)

2.16.3.1.O. Thought Stopping

Consider the positive parts of the tragic event (e.g., It does not last long). Find reassuring information (e.g., If I think about something else, it does not hurt as much). Condense reassuring information into a brief series of phrases that the child can memorize (e.g., Short procedure, good veins, little hurt, nice nurse, go home). Ask the child to recite the memorized statements whenever he or she is reminded of the traumatic event (Hockenberry et al., 2019; Perry et al., 2014).

2.17. Consequences of untreated pain

2.17.1. Physiological consequences

Unrelieved pain is stressful and has many undesirable physiologic consequences on several body systems . Pain in the newborn and infant drains energy resources the infant needs for growth and healing. The autonomic nervous system becomes unstable, reflected in changes in vital signs, oxygen saturation, vagal tone, and palmar sweating. Unrelieved discomfort can induce a stress ulcer by delaying the resumption of normal

stomach and bowel processes. Anorexia caused by pain reduces nutrient intake and slows the healing process (Macintyre et al., 2010; Ball et al., 2010)

The mismanagement of infant pain is partially the result of misconceptions regarding the effects of pain on the neonate and the lack of knowledge of immediate and long-term consequences of untreated pain. The physiologic and behavioral changes, as well as a variety of neurophysiologic responses to noxious stimulation, are responsible for acute and long-term consequences of pain (Hockenberry and Wilson, 2018; Hall and Anand, 2014).

In addition to the significant negative physiological effects, inadequate pain management can be detrimental to the patient psychologically. Pain is not a directly observable or measurable phenomenon but rather a subjective experience that has a variable relationship with actual tissue damage (Gan, 2017).

The experience of unrelieved pain can cause obvious unnecessary suffering and dissatisfaction for the patient and their family. The patient may experience sleep deprivation which can increase postoperative fatigue. (Hylton, 2019).

Longitudinal studies have revealed that chronic or repetitive pain affects the development of the peripheral, spinal, and supraspinal pain systems from an early age. Relationships between prenatal discomfort and emotional temperament in infancy or childhood show that these neurobiological changes are ubiquitous. Damage to the peripheral nervous system in newborns caused by repetitive pain from heel sticks, which resulted in hyperinnervation of the afflicted tissue for a long time, appeared to be more severe in infants than in adults (Oakes, 2011).

2.17.2. Behavioral Consequences of Pain

Children learn about pain through the first experience, and develop a pain memory. The pain experience may also cause an infant or child to respond in different ways. Sensitization may cause the child to have a lower

tolerance for pain, display more distress, or develop a fear-avoidance behavior (Watkins and Carr, 2018; Bisogni et al., 2014).

Moreover, as general consequences of untreated pain:

• Unrelieved pain triggers stress responses

• Can prolong or adversely affect recovery

• In infants, pain increases release of certain chemicals in the body that can cause breakdown of fat and carbohydrate stores, prolong hyperglycemia, and increase serum lactate, pyruvate, ketone bodies, and no esterified fatty acids—the result is increased morbidity (Mathews et al., 2015).

2.18. Family Teaching about pain management:

It is crucial to tell the child that you care about her discomfort and that you will work with her to alleviate it.

Positivity is the best strategy: If you take this medication, it will ease your discomfort rather than let's see if this works.

• Preventing pain rather than just alleviating it can be accomplished by administering medication prior to the onset of discomfort. Keep personnel informed if a certain method succeeds or doesn't work when the child is in the hospital.

• Analgesics alone are insufficient. Do things like smoothing the covers or rubbing the back of the child's neck to make them feel more at ease.

• Inquire with your child about what she thinks may be useful, such as an additional pillow, the television turned on, or a favorite toy nearby.

• Assist your child in describing and talking about her pain. Psychologically, this can make things become more substantial and less frightening.

• If it's possible, relax about other parts of your life. It is critical to practice relaxation techniques in order to alleviate discomfort.

• Be there for your child when he or she needs you. When you have a friend or family member at your side, pain seems less severe.

- This is a great way to reassure your child that she is loved and that you are always there to help.

- "Be a big girl," "Stop sobbing," and other comments like these should be avoided when administering an injection to a youngster who is in discomfort. For example, instead of "It's alright to cry," say, "It's OK." I'm aware of the agony, but I don't want to embarrass a kid who won't give up. (Pillitteri, 2018).

2.19. The Nurse's Importance in Pain Management

A nurse's involvement in pain management is critical for all patients, but it is especially more critical for the premature infant population, which is particularly undeveloped. Because infants are unable to express themselves verbally, the nurse must act as the client's advocate and spokesperson. The goal of neonatal pain management is to limit suffering and maximize the neonate's ability to deal with and recover from the many painful procedures in the NICU, according to the nurses (Qasim et al., 2021). Analgesics have both beneficial and harmful effects, and the nurse must strike a balance between the two. For this, a nurse must be able to administer both pharmacological and non-pharmacological therapies. Non-pharmacological approaches are required for some procedures, while pharmacological interventions are required for others. Pharmacological therapies and non-pharmacological interventions may be necessary in some cases, while the nurse may choose to use a combination of numerous non-pharmacological interventions to better protect the baby from pain (Jonsdottir and Gunnarsson, 2020).

Many nurses are still unaware of the importance of nurses in the management of pain. They are essential in assessing pain, determining what the effects of pain are on a single person, advocating for patients and educating them and their families about the medication's side effects, encouraging patients to take their pills, and ensuring that they receive the pain medication they require. In contrast, even after 20 years of research,

pain management remains inadequate. Some of the attributed factors in nurses' practice include nurses' belief that prescribing pain medication is the responsibility of doctors, when it is, in fact, our responsibility as healthcare professionals, and nurses' lack of knowledge of pain management (Bernhofer, 2011). Nurses should improve their knowledge of pain and learn the most up-to-date pain management techniques because they play such an important role in pain treatment. Training for nurses has been shown to improve their pain management understanding. Nurse education has no effect on pain management, according to a research. Nurses' behaviors and knowledge do not change after they have received pain education (Cahyani et al., 2019).

2.20. Nursing Care Plan for child with pain

Nursing care for a child with discomfort (lack of comfort or ease) or pain should be guided by principles of the nursing process. After performing subjective and objective assessments of the pain, the nurse focuses on establishing goals for pain control and interventions that concentrate on pain alleviation. Ultimately, the goal is to remove or reduce the cause of the discomfort or pain. The following interventions may be administered following a thorough pain assessment using the principles of anticipation and proactive nursing care:

• Before initiating intravenous (IV) infusions or injections, use topical anesthetics like EMLA (not on young infants).

- Believe children when they say they're in pain: Pain is a symptom that appears anytime a child claims it.

- Take all reports of discomfort seriously and act quickly if necessary.

• Regardless of the child's developmental stage or ability to communicate himself or herself, pay attention to the child's communication and description of the pain experience.

• Pain thresholds vary with developmental stages, diagnoses, and surgical procedures, so expect differences between children of comparable ages.

• Inquire about previous pain experiences and successful coping methods.

• Parents and caregivers should be involved in pain assessment and treatment.

• Recognize that weariness, anxiety, and fear can heighten a child's pain sensitivity.

• To describe pain, utilize a variety of terms, taking into account the child's developmental level and the phrases that the family employs. Inquire with the parents about the phrases they use (ouch, ouchie, booboo, owie, hurtie); record the words on a card and keep it by the bedside. For the interdisciplinary team, write down your preferences.

• Use a multidisciplinary approach to pain management, including child life professionals.

• Within one hour, evaluate the effectiveness of pain therapies and document the results.

• Provide parents or guardians with continuing education and assistance.

• Explain to parents that opiate addiction in the presence of suffering is a relatively uncommon occurrence.

• gastrointestinal distress, nausea, constipation, severe itching, and drowsiness are all possible side effects of opioids consumption.

• Educate parents on what to expect. (Perry et al., 2017; Linnard-Palmer, 2017).

2.20.1. Care Plan for a Child in Pain

1- Nursing Diagnosis: Pain caused by a medical condition, therapy, or injury is acute.

Interventions:

- Observe nonverbal signs such as posture, breathing patterns, movement, and facial expression; enquire about the parents' opinion of the child's comfort level; and if necessary, assess pain. When assessing a child's level of discomfort, look to their parents for clues about their child's normal behavior when they are in pain.

- Offer comfort and supportive measures and allow the youngster to communicate their feelings of distress.

- Patients and their families should be informed about their child's medical condition and the treatment options available.

- Involve parents as much as possible in the care of their children. Aim to educate parents on what they can do to support their children (e.g., read a story, help the child with coping strategies such as deep breathing). (Bowden and Greenberg, 2010).

Nursing Diagnoses :Anxiety associated to apprehension of a painful procedure and fear of the unknown:

Nursing intervention:

- Discuss the need for a repeat treatment with the parents, as well as various pain-relieving measures.

- For the first hour after the surgery, keep the child busy with peaceful activities.

- Consult a member of the pain management team for the best pain relief for a scared preschooler.

- Apply anesthetic cream to the aspiration site and cover it with an occlusive bandage one hour before the scheduled procedure, as prescribed by your doctor.

- Just prior to surgery, remove the occlusive dressing and EMLA cream by wiping them clean (Pillitteri, 2018)

Nursing diagnosis: knowledge deficit related to current condition suitable methods for handling pain, include crying, irritation,

pushing away and queries and verbalizations concerning pain and alleviation method.

• Begin by examining the level of knowledge and awareness of the child and their parents regarding their current health and discomfort level.

• Give the child and their parents time to ask questions, and then answer honestly and in a way that the child and their parents can understand.

• Explain in simple words how the child's illness is related to pain or the justification for operations that may contribute to the child's suffering in order to promote comprehension and develop trust.

• In order to prevent overburdening the child and their parents, teach in short bursts.

• To aid the teaching/learning process, provide reinforcement and rewards.

• When possible, use numerous modes of learning to aid learning and retention of information, such as written information, spoken teaching, demonstrations, and media (Ricci and Kyle, 2009).

Nursing Diagnosis: disturbance of sleep patterns R\T inadequate pain control

• Analgesia can be given continuously or every 3–4 hours around the clock.

Nursing Diagnosis: ineffective breathing patterns R/T opioid overdose

• Make that the child is getting the right opioid dose for his or her weight.

• Before and during the administration of an analgesic, keep track of vital signs and breathing depth. If vital signs fall within the boundaries defined by the healthcare provider or policy, the opioid should be withheld.

- Calculate the agonist dose suggested by your healthcare practitioner to ensure that it will correct respiratory depression while avoiding the analgesic effect.

2.21. Previous studies:

1-A study that carried out by (Majeed et al., 2020) to assess nurses' knowledge and attitudes about patient's pain management and to find out the relationship between knowledge , attitudes and their demographical characteristic. It resulted to majority of nurses (77%) have training session about patient's pain management , concluded that nurses' have poor knowledge about pain management, as well as study indicated overall nurses' have positive attitudes toward pain management.

2- (Thapa and Gurung, 2020) conducted a study to analyze nurses' knowledge, attitude, and practice about postoperative pain management at various hospitals in Bharatpur. The survey found that 85.1 percent of nurses had insufficient knowledge, 55.4 percent had a positive attitude, and 52.7 percent had insufficient practice. Level of practice was shown to have a statistically significant relationship with nurse age (p=0.010) and professional qualification (p=0.002). In terms of POP management, there was no statistically significant association between KAP scores. Conclusions: The majority of nurses had a low degree of awareness on POP management, and more than half had a positive attitude but a low level of practice. The age and professional qualifications of the nurses were found to be linked to POP management approach.

3-(Agyemang et al., 2020)conducted a study titled (Nursing and Midwifery Students' Knowledge and Attitudes Regarding Children's Pain) During the 2018-2019 academic year, 554 final-year nursing and midwifery students from four Ghanaian nursing and midwifery training schools participated in this cross-sectional descriptive study. The Pediatric Nurses' Knowledge and Attitudes Survey on Pain was used over a three-month period to conduct the research (PNKAS). The data was analyzed using SPSS

version 25 and presented using descriptive statistics, independent t tests, and one-way ANOVA. PNKAS scores averaged 42.1% among participants (range: 21.4 percent to 81.0 percent). Students studying nursing and midwifery in public (44.1 percent 7.9 percent) or private (43.7 percent 9.6 percent) universities scored considerably higher than those studying at public nursing and midwifery training colleges (40.3 percent 6.9 percent) (p.001). Conclusion: It was discovered in the study that nursing and midwifery students did not have enough understanding or attitudes towards children's pains. In order for these students to better address the needs of vulnerable children and their families, education in this area needs to be scaled up. Researchers should look into how students' theoretical understandings and attitudes affect their methods for evaluating and treating children's chronic pain in the future.

4- A study by (Islam et al., 2020) to determine the level of Bangladeshi nurses' knowledge and practice of pediatric pain management . There were 150 clinical pediatric nurses from two medical colleges and a university hospital in Bangladesh who were all involved in this descriptive survey study. Nurses' expertise was measured using a demographic data form and a 32-item survey. In Bangladesh, a survey of nurses' understanding of pediatric pain treatment included 32 true-or-false questions about that expertise. A 1 was given for a correct answer, but a zero was given for an inaccurate one. The overall score was divided into three categories: low (0-20), moderate (21-23), and high (24-27). (24 and above). There was a demographic data form, a 19-item practice-related survey on pediatric pain management. 5-point Likert scale, from 1 for no practice to 5 for a lot of practice , was used to assess how often nurses practiced pediatric pain management skills. We gave 5 stars to things you do all the time, while giving 1 stars to those you never do at all. The score could be anywhere from 19 to 95 points. There were three categories of overall scores: low (19-38), moderate (39-76), and high (77-100). (77-95). Findings from this study show that the majority of

nurses' knowledge of pediatric pain treatment was moderate (mean=21.50, SD=2.35). The practice of nurses in the area of pediatric pain treatment was likewise found to be of a moderate level (mean 75.45, SD 8.24). The correlation between nurses' education and practice was insignificant. Along with this, there was a strong correlation between nurses' knowledge of pain management protocols, practice of the nurses in the unit, and reading the magazine of the American Association of Colleges of Nursing (AACN). The results of this study demonstrated a moderate level of knowledge and practice, indicating that knowledge and practice skills in pediatric pain management need to be improved.

5. Patnaik et al. (2017) conducted a study to examine pediatric pain treatment knowledge, attitudes, and practices among nursing staff in pediatric tertiary care hospitals Materials and Procedures: With the help of 40 nurses, a cross-sectional, self-administered questionnaire-based study was conducted. The questionnaire included 45 topics in the categories of personal information, knowledge, and perceptions of pediatric patient pain, as well as pain management techniques. At all levels, voluntary involvement was ensured, and anonymity was protected. Nurses had an average age of 25.53 4.05 years. Ninety percent had a nursing diploma, and ten percent were graduates. More than half of the participants (57.5%) had between one and five years of experience. The average knowledge score was found to be 10.88 2.81. (range 3-16.87 percent). The majority of participants (87%) said that children have good pain sensitivity. Only 40% of nurses were aware of the pain scoring method, but none of them employed it in their regular practice. None of the nurses could provide information on how to administer morphine for chronic and long-term pain. Only 44% of participants had the correct attitude toward children's pain, and only 60% had given a suitable answer when it came to practices. Conclusion: The study demonstrated a gap in nurses' understanding and practices addressing children's discomfort.

6. (Twycross et al., 2013) conducted a study: Design and Methods. On the care of ten children, participant observational data was collected. Actions taken when pain levels were 5 and the association between pain scores and drugs delivered were given special attention. Results. Even if pain drugs were administered pro re nata, a pattern of care formed in which they were given on a regular basis. When pain levels reached 5, people took a variety of actions. Pain scores are rarely used to influence treatment decisions. Implications of Practice More research is needed on the use of pain scores to inform treatment decisions. Future studies should look into the effects of separating treatment from pain scores on children's pain. Unrelieved pain has a variety of negative physiological and psychological effects on children, both at the time of the experience and subsequently in life. After surgery, infants who were given deep anesthesia and opioid analgesics had a considerably reduced perioperative stress hormone response and incidence.

7- Basak (2010) published a study named "Knowledge and Attitudes of Nurses and Their Practices Regarding Post-operative Pain Management in Bangladesh." A hundred nurses were chosen at random from two hospitals in Bangladesh. The questionnaires are divided into three sections: (1) Nurses' Demographic Data Form; (2) Nurses' Knowledge and Attitudes Regarding Post-operative Pain Management Questionnaire; and (3) Nurses' Caring Behavior Regarding Post-operative Pain Management Questionnaire. Three specialists content-validated the surveys, which were then back-translated into Bengali. The knowledge and attitudes questionnaire had a test-retest reliability coefficient of.72, while the practice questionnaire had a reliability coefficient of.87. A total of 87 questionnaires were returned and analyzed. The findings revealed that nurses had a low level of knowledge and negative attitudes toward post-operative pain care, while having a reasonable degree of practice. As a result, nurses' knowledge, attitudes, and practices regarding post-operative pain treatment must be improved in Bangladesh.

2.22. Theoretical framework

The theoretical framework in relation to the topic of pain is discussed in this chapter. A theory's main goal is to make research findings understandable and understandable. The theories allow researchers to connect facts and observations to a logical structure. A theory is not a belief or a guess. It is based on experimental evidence discovered through scientific study that has been rigorously controlled and validated to ensure that it is free of bias. The theoretical framework is utilized to set the stage for investigating a topic and then providing solutions to the problem at hand. The comfort theory of Katharine Kolcaba was chosen as the nursing theory to complement the problem research.

Kolcaba's Theory of Comfort serves as the theoretical underpinning for this study. In 1994, Katharine Kolcaba coined the term "comfort" to describe and emphasize the responsibility of nurses in preventing and treating patient discomfort. Kolcaba's theory takes a holistic therapy approach to determine the origins of a patient's suffering, taking into account all elements of the patient. According to Kolcaba, there are three sorts of comfort: alleviation, ease, and transcendence. When the patient's immediate requirements are satisfied, discomfort is relieved. Patient contentment, such as less anxiety, is followed by ease. And the patient achieves transcendence when he or she overcomes the obstacle of discomfort. A patient's comfort, according to Kolcaba, extends to his or her physical, psychospiritual, environmental, and societal surroundings. By considering these four contexts when providing care, the nurse can see the patient as a diverse and holistic individual (Kolcaba and DiMarco, 2008). Finally, Kolcaba proposes a paradigm for nurses to follow in order to efficiently attain and sustain patient comfort. Kolcaba's comfort nursing care model is comparable to the traditional nursing approach in that it includes objective and subjective patient assessment, plan development, care implementation, and intervention

evaluation. Nurses can use this strategy to successfully recognize and treat patients who are experiencing a variety of symptoms (Krinsky et al., 2014).

Kolcaba's comfort theory is especially useful for critically ill youngsters. The goal of this study is to combine pharmaceutical and non-pharmacological therapy to address acute pediatric pain, exemplifying Kolcaba's holistic approach to healthcare. How a nurse reacts to a child's suffering is determined by her impressions of the child's perceived or actual pain. Kolcaba's nursing care model is crucial for comprehending how nurses think and react when confronted with a kid who may or may not be in pain. Pain is a complex and nuanced sensation that requires a variety of therapies. This theory is supported by Kolcaba's belief that comfort affects all aspects of a person's life: bodily, psychospiritual, environmental, and social. In this study, pain is seen as a complicated condition that requires comprehensive nursing treatment. In the prevention, treatment, and management of pain, Kolcaba's philosophy of comfort is the gold standard for nursing care (Peterson and Bredow, 2019).

Using Kolcaba's theory of comfort, one can gain a full understanding of pain's many complexities. Nurses are in charge of determining which pain management strategies are most effective and then putting them into action. Non-pharmacological and pharmaceutical nursing approaches in controlling pediatric pain are supported by Kolcaba's hypothesis, However, additional research in this field of study and practice is required (Shaffer, 2019).

2.22. 1. Kolcaba's major assumptions:

1.Children have holistic responses to complex stimuli.

2. Providing patients with a sense of well-being is essential to the practice of nursing.

3. Providing for a child's basic requirements is an ongoing effort on the part of the child and his or her family.

Using the Comfort Theory as a framework, it is best understood when broken down into three distinct pieces. As stated in Part 1, In all situations,

nurses must be able to assess the patient's holistic comfort needs (physical, psycho-spiritual, sociocultural, and environmental). For this reason, nurses not only carry out a wide range of interventions, but they also monitor their patients' comfort levels both before and after they are carried out. Additionally, this section of comfort theory focuses on elements that the nurse has limited influence over, but which have a significant impact on the effectiveness of comfort interventions. The patient's financial situation, cognitive health, social support level, and prognosis are only a few of the factors at play.

Part 2 of the comfort hypothesis suggests that patients who are more comfortable are more likely to engage in actions that lead to a better quality of life, whether they are doing so consciously or subconsciously. These are known as health-seeking behaviors, and they serve as a basis for applying comfort measures. Reduced blood loss, no issues, increased healing, increased mobility, and the ability to consume oral fluids are all examples of health-seeking behaviors in the context of paranesthesia. In part three of the comfort theory, "institutional integrity" is mentioned as a component in health-seeking behavior. The ability of a health-care organization to provide high-quality care while adhering to ethical norms is referred to as "institutional integrity." Some of the many indicators that can be used to evaluate a hospital's performance include cost of care, length of stay, staff turnover rate, and patient, nurse, and patient satisfaction (Wilson & Kolcaba, 2004).

2.22.2. Theoretical framework's major concepts and definitions

- In a particular practice context, the patient's or family's healthcare needs are identified.

- Nursing interventions that target specific comfort requirements of patients are known as comforting interventions. This category includes

physiological, social, economical, psychological, spiritual, environmental, and physical interventions.

- Intervening factors are forces that interact to impact the judgments of total comfort among recipients. Past experiences, age, attitude, emotional state, support system, prognosis, and income should all be taken into account.

- Improved comfort is an immediate beneficial result of nursing care, according to Comfort Theory. When comfort therapies are used on a regular basis, they may lead to an increase in comfort levels as well as desired health-seeking behaviors (HSBs).

Health-Seeking Behaviors : The concept of HSBs was first introduced by Scholtfeldt (1975), and it is separated into two parts:

- Healing, immunological function, and white blood cell count are all examples of internal HSBs.

- External HSBs include health-related activities, functional outcomes, and a peaceful death.

- At the local, regional, state, and national levels, the ideals, financial stability, and wholeness of health-care institutions are referred to as institutional integrity.

An institution establishes standard operating procedures for specific patient/family applications after collecting evidence. The best policies are protocols and guidelines that standardize an organization's techniques for overall use after accumulating evidence, while the greatest policies are protocols and guidelines (Rao et al., 2011).

Kolcaba's Comfort Theory can be used in a variety of settings, including Alzheimer's, hospice, post anesthesia nursing, women and childbirth, pediatrics, and ambulatory care. According to Comfort Theory, increased comfort encourages patients to engage in activities that contribute to a feeling of wellness , whether consciously or subconsciously. These are

known as health-seeking behaviors, and they serve as justification for applying comfort measures (Kolcaba et al., 2006).

In the end, Comfort Theory refers to the process of a nurse providing comfort to a patient. Patients in difficult health-care conditions, according to this notion, have comfort demands. Some needs are provided by patients and their families, but others go unmet. A nurse can identify these needs and then adopt pharmacologic and non-pharmacologic comfort methods to address them. Nurses must have adequate knowledge and appropriate attitudes to assess and evaluate a patient's comfort needs in order to achieve this. Pain reduction, respite from distress, and support for the patient as they go through the experience or condition are all examples of comforting measures. Subsequently. This lowers the cost of recovery for both individuals and the country as a whole (Freire et al., 2021).

2.23. Conceptual framework

This framework's notion was developed from a literature and tweaked to match the needs of this investigation. It depicts the link between child-related factors, organizational factors, and health-care provider factors in the management of pain in children who are hospitalized.

Child-related factors, organizational factors, nurses-related factors and parents' and culture-and-beliefs-related variables all have a direct or indirect As previously stated, this has an impact on nurses' knowledge, attitudes, and practice in pediatric pain management. Nurses' knowledge, attitudes, and practices around pediatric pain management are affected by the child-related factors such as children's unwillingness to take pain medications, children's reluctance to report pain, children comply and the patient's instability. Pediatric patient pain management knowledge, attitudes, and practices among nurses are directly influenced by organizational factors such as protocols and guidelines for pain management, analgesic availability, and the use of a standardized pediatric pain assessment tool. Age, gender, marital status, education level, job experience on the ward, reading guidelines, pain

and opiate expertise, and ongoing professional education all affect nurses' knowledge, attitudes, and practice when it comes to pediatric pain treatment. Nurses' knowledge, attitudes, and practices about pediatric pain treatment are influenced by factors such as parents' reluctance to have their children get medications, parents' concerns about analgesic side effects, and parents' concerns about their children becoming addicted. Finally, cultural and belief elements, such as cultural belief and parents' belief, affect nurses' knowledge, attitudes, and practices about pediatric pain management

Nurses related Factors
1-further continue education(training)
2-read any Guidelines for managing children's pain
3- Lack of training
4- Lack of familiarity with analgesics
5- Sedation interfering with pain assessment
6- Low priority of pain management
7- Poor documentation of pain assessment

Organizational related factors
1- pain management standards or protocols
2- standard pain assessment tool
3- Lack of protocols for pain management
4- No designated area for charting pain
5- Poor communication of pain assessment priorities
6- Insufficient analgesia dosage
7- essential analgesics
8- A lack of cooperation
9- Low staff numbers
10- Nursing workload

Cultural and believes factors
1- cultural belief
2- Parents belief

Knowledge for pain management

Practice for pain management

Attitude for pain management

Child related factors
1- Children's reluctance to take pain medications
2- Children's reluctance to report pain
3- children cooperate
4- Patient instability
5- Patient inability to communicate

Parents factors:
1- Parents' reluctance to have children receive medications
2- Parents concern about side effects of analgesics
3- parents concern about children becoming addicted

Figure 2.23. show conceptual framework : the relationship between KAP study with associated factors that effect on pain management among nurses
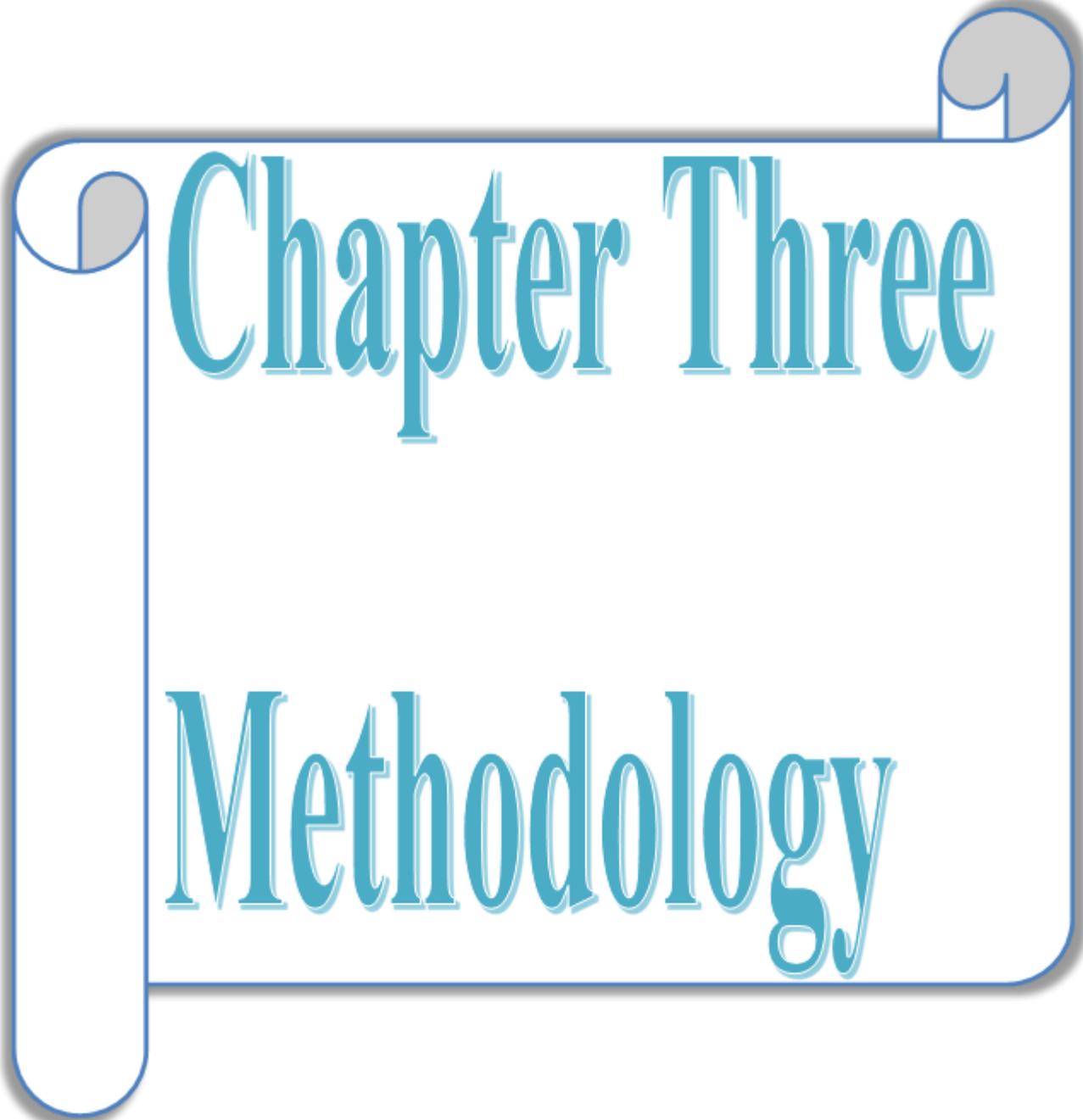
Chapter Three

Methodology

Chapter Three

Methodology

Target population

↓

Nurses who working in pediatric wards

↓

Accessible population

↓

Nurses who working in hospital of Babylon province

Demographic characteristics

1. Age
2. Gender
3. Years of experience in hospital
4. Educational qualification
5. Years of experience in pediatric wards
6. Any training courses.
7-Marital status
8-Residence
9-Work place

Sample and sample size

→ Non probability (Convenience sample)

↓

300 nurse who work in pediatric wards

↓

Questionnaire

↓

Conducting KAP scale, and factors scale on pain management among nurses

↓

Data analysis

↓

Descriptive and inferential

↓

Findings and dissertation report → Criterion measure knowledge, Attitude, and practices score

↓

Discussion

Figure 3-1. Diagram representation of research design

3.1. Administrative Agreements and Ethical Considerations

3.1.a. Administrative Agreements

At the beginning and before the dissertation implementation, the collaborative work was done to choose the topic suitable for obtaining a doctorate in nursing. The continuous reviews of previous literature and studies conducted at the governorates of Iraq in the nursing field, especially in Iraq, noticed that the work of nurses in the pediatric department, particularly the neonatal units, was not addressed or studied before. Therefore, the study's title was designed to shed light on "the factors influencing nurses' knowledge, attitudes, and practices about pain management in pediatric departments" and the objectives that were studied formulated.

In September 2020, a scientific session was held at the Faculty of Nursing / University of Babylon to discuss the study's title and objectives. Some changes have been made with the specialized academic committee; then, they were approved and adopted as the title of the doctoral dissertation.

After the first seminar presentation, the nursing department in the faculty of nursing at the University of Babylon issued an official permit. then the council of the University of Babylon approved . The researcher completed the study protocol and the ethics forms for scientific research approved by the University of Babylon / College of Graduate Studies. The researcher submitted a request to the Division of Postgraduate Studies in the College of Nursing intending to address the Babylon Health Directorate / Training and Human Development Center to approve conducting the study in hospitals identified as a place for research (Appendix A).

On 24 June 2021, received formal agreement from Babylon Health Directorate/ Training and Human Development Center to carry out the study at the pediatric departments of Babylon Teaching Hospital for maternal and children, Ibn Saif al - Janabi children's Hospital, Al-Hashimiyah General Hospital, Al -Qasim general Hospital, and Imam Sadiq Hospital (Appendix (B)).

3.1.b. Ethical consideration:

An ethical committee of the Department of Pediatric Nursing at Babylon University / College of Nursing approved the study protocol. All the information gathered from participants was kept trusted and confidential.

Ethical obligations are considered one of the most critical aspects that the researcher must be applied before starting the process of collecting the data from the sample participating in the study, such as clarifications of specific significant points, as well as the obligation to maintain the confidentiality of the data and undertake to use it for the study only.

After completing the design of the questionnaire that was adopted as a tool for the study, which was intended to provide a brief explanation to the participants about the nature of the research and its purpose to form a clear picture as well as a clear explanation about their right in not completing their participation if they feel disinterest in the study (it included in Appendix (B) Research approval and Appendix (A) facilitating the task of collecting the sample to the Babylon Health Directorate).

3.2. Design of the study:

The study employed a descriptive design for this quantitative, from 21 September 2020 to 2 June 2022.

3.3 .The study setting

The study was conducted in pediatric wards of the hospitals in Babylon province, and the researcher chose only six governorate hospitals from total hospitals in Babylon province (The full hospital in Babylon province about 11 hospitals); the researcher selected these hospitals due to having more children patient's admission, and more pediatric wards as shown below (figure 3-1). The researcher considered pediatric wards, emergency departments, pediatric intensive care unit (PICU), premature units, and blood disease units in this study. Those departments that employ nurses who provide care for children suffering

from pain arising from health care, diagnostic or therapeutic procedures; were selected.

```
┌─────────────────────────────────────┐
│         Babylon province            │
│    (11) governmental hospitals      │
└─────────────────────────────────────┘
                 │
                 ▼
┌─────────────────────────────────────┐
│  According numbers of pediatric     │
│  patient admission, and pediatric   │
│  wards                              │
└─────────────────────────────────────┘
                 │
                 ▼
        ⬭ Selected only six hospital ⬭
```

Al Hashimiy a General Hospital	AL Noor pediatric hospital	Babel Maternity & Children hospital	Eben Saif Al Jenabi for children	Al Qasim General Hospital	Imam Sadiq Hospital
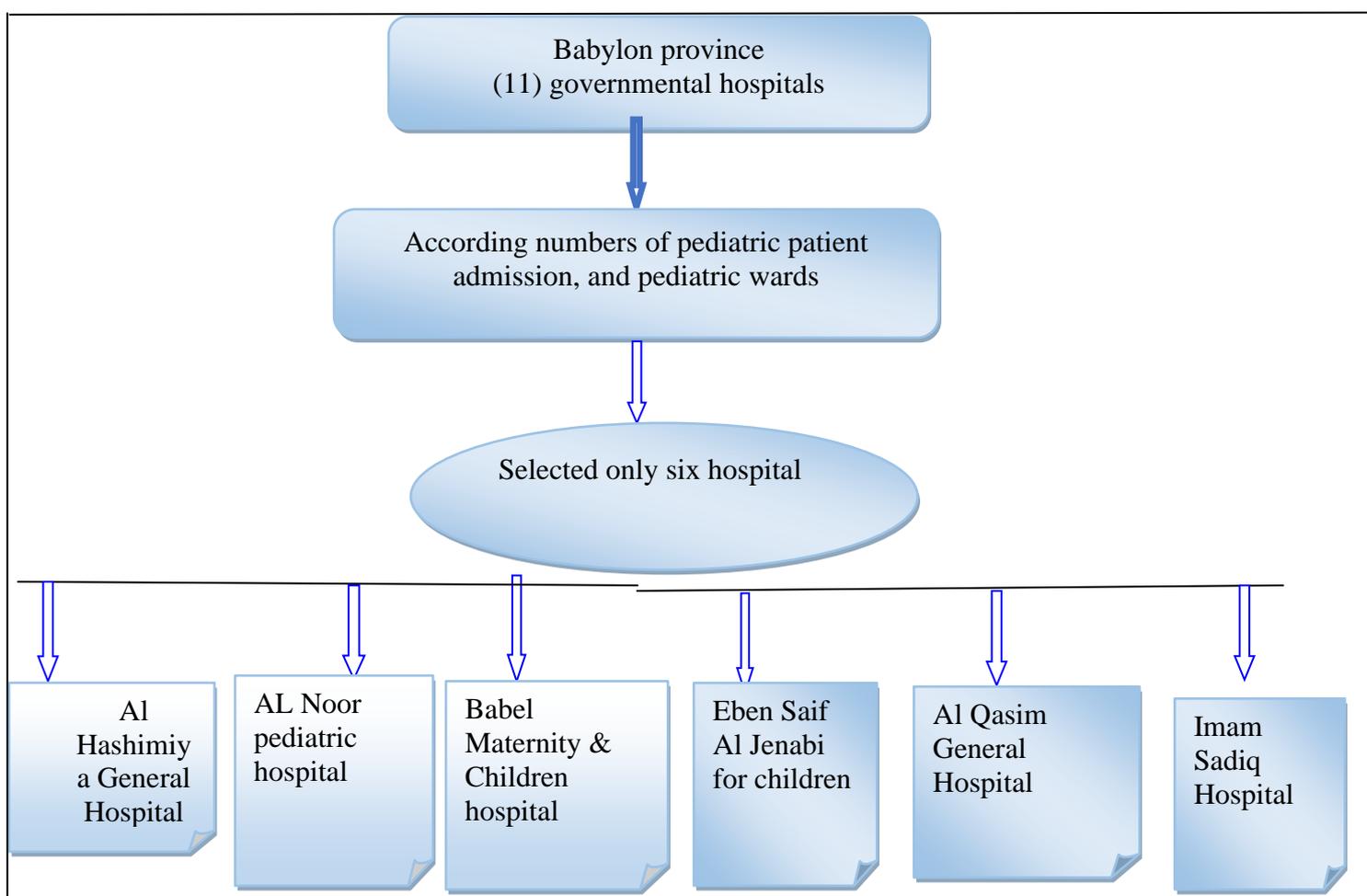
Figure (3-2): show hospitals selection

3.3. 1- Al Noor Hospital for Children

It is a hospital specialized in providing medical services for children and newborns, located in the city of Hilla. It was established in 2012 and is the second hospital in Hilla to provide treatment for children and newborns after Babel Hospital for Women and Children. The hospital covers an area of 12,500 square meters and includes 100 beds distributed among several departments, including the emergency department, haematology department, fever department, and premature infant's department.

3.3.2- Al-Imam Al-Sadiq teaching hospital

This hospital was established to receive Babylonian citizens in 2017; the total capacity of this hospital is 503 beds. The emergency unit consists of (39)

beds, distributed as male emergency unit (19) beds, while the other (20) beds are assigned as female emergency units. There is a pediatric department consisting of RCU, a premature unit (sterile and non-sterile), and pediatric wards; also, the number of incubators is about 31, while the pediatric intensive care unit has about six beds.

3.3.3- Babil Teaching Hospital for Maternity and Children

It is a hospital specialized in providing medical services for children and newborns, located in the city of Hilla in the Bab Al-Mashhad area within the Al-Fayhaa residential sector. The foundation stone was laid in 1979, and its construction was completed in 1985. The hospital provides medical care services for its patients from birth to 14 years of age. The hospital includes surgical rooms, premature units, a blood disease unit, an emergency department, as well as a pediatric intensive care unit (RCU).

3.3.4-The Hashemite General Hospital

It was established, and the foundation was placed in 1971 A.D., and it was received for patients in 1972 A.D. after the completion of construction and preparation of the hospital with a capacity of (50 beds), and it consist of different wards like surgical, maternity , and pediatric wards that include medical and surgical wards, as well premature unit.

3.3.5- Ibn Saif Children's Hospital

Ibn Seif Hospital for Children includes an emergency ward, a premature infant unit, and a pediatric ward. The hospital capacity is about 50 beds distributed among the hospital departments as follows: 10 beds in the emergency unit, ten beds in the preterm unit, and 30 beds in the pediatric wards. The actual number of nurses is about 81 distributions between males and females. The hospital in the past was a children's and women's hospital in the north of the city of Musayyib, Jilawia region, and in the year 2008 it was opened by Al-Zahraa Maternity Hospital, and It was separated as an independent hospital, and in 2015 it bought Al-Anis Hospital (a private hospital) and Ibn Saif Hospital moved to its location and location in Al-Zahraa neighbourhood in Al-Musayyib district.

3.3.6- Al Qasim General Hospital

Al Qassim General Hospital was established in 2008 , which consists of several departments, including emergency, consultancy, medical and surgical wards, maternity wards, children's wards, and cardiopulmonary resuscitation ward, in addition to the premature unit and the delivery room. Additionally, the hospital capacity is about 164 beds. As for the children's ward, it contains 13 be all nurses working in pediatric departments at Babylon province hospitals. while the premature unit, containing 12 incubators.

3.4. Study Population

All nurses working in the pediatric departments of Babylon province hospitals .

3.5 Sampling and sample size

The total numbers of nurses who actually working on pediatric wards about 695 nurse, who selected as non-probability purposive sample for current study, and consisted of 300 nurses who worked in pediatric departments distributed as follow: Babylon Teaching Hospital for maternal and children 93 nurses, Ibn Saif al - Janabi children's Hospital 66 nurse and Al-Hashimiyah General Hospital 25 nurse, Al -Qasim general Hospital 16 nurse, Imam Sadiq Hospital40 nurse, Al Noor pediatric hospital 60 nurses. This number was obtained only from the participants in the research due to different reasons like most of the nurses were sent as reinforcement to the epidemiological wards as a result of the lack of nursing staff in these places, as the Corona epidemic had a significant and clear impact on the health institutions, and certain form of questionnaire not complete by nurse and excluded by the researcher, as well 30 from total number of nurses using for pilot study and excluded from study sample, in general this strategy was used to reduce sampling error and enhance representation.

The sample size was calculated using Taro Yamane formula as the following:

$$n = \frac{N}{1 + N(e)^2}$$

Where, N= Population of study, 695

k = constant, 1

e = degree of error expected, 0.05

$$n = \frac{695}{1 + 695(0.05)^2}$$
$$n = 254$$

According to the responses of the respondents above, a sample size of 254 will be used to ensure a 95 percent level of confidence (Chaokromthong and Sintao, 2021; Adam, 2020).

As well, The total number of sample 300 subjects as shown in table (3.1) below:

Table (3.1) The proportion to be taken on each study place .

List	Name of Hospital	Number of nurses	Selected nurses
1	Babylon Teaching Hospital for maternal and children	350	93
2	Ibn Saif al - Janabi children's Hospital	86	66
3	Al-Hashimiyah General Hospital	77	25
4	Al -Qasim general Hospital	24	16
5	Imam Sadiq Hospital	60	40
6	Al Noor pediatric hospital	98	60
7	Total	695	300

3.6 . "Criteria for Eligibility":

3.5.1. " Inclusion Criteria":

1. Nurses working in one of the following pediatric departments ("Medical, surgical and emergency, PICU, premature units, and blood diseases unit").

2. Nurses who agreeable to participate in the study

3. Both male and female staff nurses.

4. Staff nurses who are on the job during the period of data collection.

3.7. Sampling plan:

Non-probability convenience sampling was used because it is much easier, faster and cheaper compared to other probability sampling, as six hospitals were selected from different locations, as it is the largest in Babil Governorate, which has departments containing more children who are cared for by the nurses who will be involved in the study, such as those who work in pediatrics, surgery and emergency situations in addition to those cases in preterm and neonatal units.

3.8. The Tools of the Study

A comprehensive review of the relevant literature led to the creation of the research instrument. in order to meet the study's objectives. It was subjected to scrutiny by the instrument's supervisor and a panel of pediatric health nursing professionals. There was a thorough examination of the instrument's construction and composition.

Part one: Consisted of the participants' sociodemographic information. It contained eight items and inquired about the hospital, the department in which they worked, their age and gender,residency, marital status, their level of education, their years of experience in hospital, their years of experience in pediatric wards, and training courses.

Part two: Nurses knowledge on pediatric pain management. In total, there were 31 statements to choose from, with options ranging from true , and false . The researcher assigned a one (1) point score for each correct answer, and a zero (0) point score was assigned for each wrong answer. Pain assessment tools; an optimal time for pain assessment; the frequency with which pain assessment tools are used; the definition of undertreatment; the schedule for opioid administration; medications useful for treating mild pain; a physical and cognitive technique that may help reduce pain; the advantage of non-pharmacologic pain management measures. Ferrel and McCaffery created this component in 1987 and revised it in 2014 (https://prc.coh.org), Also, (Abu Amra

,2018) . Additionally, the "Knowledge and Attitudes Survey Regarding Pain" nurses and other healthcare professionals, as well as educational programs, can all benefit from using this tool for evaluation since 1987, the instrument has been widely used in a variety of settings . Over the years, the instrument has been updated to reflect advances in pain treatment practice.

Part three: Nurses' attitudes on pediatric pain management . This section's 35 items were graded on a three-point Likert scale ranging from 1 (disagree) to 3 (agree). There were three (3) points for agreeing, two (2) points for neutral, and one (1) point for disagreeing for each item. Pain assessment instruments, Nurse education and experience, placebo administration, and differences between medical and surgical pain , and the importance of the family and social support system in pain management are all included in the survey. Researchers (Abu Amra ,2018; Manwere et al., 2015) developed and edited this section.

Part Four: This was a questionnaire on the practice of nurses regarding pain management in children. This part contained 23 items, and the participants marked their performance on five points Likert scale, ranging from 1 -5 (never to constantly), respectively. For each item, a score of five (5) was accorded for constantly and a score of one (1) for never. This part included the measurement of a number of practices.

These involved: performance in children pain assessment and management; the use of different age appropriates pain measurement tools for pain assessment; assessment objective and subjective signs of pain; the use of pharmacologic and non-pharmacologic measures; awareness of the adverse effect of pain medication; reassessment of pain to evaluate the effectiveness of pain medication and frequency of use of pro re nata as needed (PRN) pain medication for pain management. This part was developed by Broom et al. 1996, and Abu Amra (2018), was used with modification by the researcher in this study.

The reference to the permission and scoring system was taken from the researcher by the WhatsApp message found in the Appendix(C). For all the three

parts (knowledge, attitudes, and practices) that use by the researcher for the current study.

Part   Five: It is a survey questionnaire for factors influencing optimal pain management for children. It consists of five sections:

First section: Factors affecting related to organization: there are ten (10) yes/no questions.

Second section: Factors affecting related to parents: three (3) questions

Third section: Children's factors: consist of five (5) questions about children

Fourth section: There are eight (8) questions in the Nurses Factors.

Fifth section: Consist of three (3) questions pertaining to cultural and religious beliefs

This part was developed by (Marshall, 2018), was used with modification by the researcher in this study. In addition, (Twycross et al., 2009) reported that several factors had been postulated as contributing to suboptimal practices relating to healthcare professionals, patients (children and parents) and the organization; these factors may affect pain management practices. As well as, this tool (Modified elements to Optimal Pain Management) adapted from Van Hulle Vincent (2005) (Appendix C).

3.9. Validity of the Questionnaire:

The validity: The extent to which the research tool measures what it is supposed to measure has been characterized as the validity of the instrument. The tool should cover all aspects of the subject under investigation (Polit and Hungler , 2013).

Face validity, this is a simple form of validity that essentially confirms that the instrument appears to be measuring the idea. In an intuitive type of validity, participants or coworkers are asked to read the instrument and assess if the material seems to match the concept that the researcher is trying to measure(Haber and LoBiondo-Wood, 2014).

In addition, the validity of the questionnaire that is used as a study tool is considered one of the most important topics that all researchers must conduct and address in the research methodology because of its critical impact on the research results that are reached after analyzing the data collected from the study sample. Usually, the validity of the questionnaire is linked to the research tools and their ability to measure the subject that will be studied, as well as the accuracy of the readings taken from those tools (Busetto et al., 2020).

The questionnaire was sent to a panel of (15) (100%) experts in various fields in nursing and medicine from variated universities to evaluate the contents of the questionnaire. They were (5) (33%) experts from the University of Babylon/ Faculty of Nursing, (6) (40%) experts from the University of Baghdad/ Faculty of Nursing, (1) (7%) experts from Al-Furat Al-Awsat Technical University / Najaf, (1) (7%) expert from University of Thi-Qar / Faculty of Nursing, (1) (7%) expert from the University of Karbala/ Faculty of nursing, (1) (7%) expert from the university of Al-Kufa /faculty of nursing (Appendix D).

Polit and Beck (2010) have stated that a panel of at least three experts is required, but a larger number may be beneficial if the content is complex. All logical and scientific opinions which have been Introduced by the connoisseurs were added and utilized. The practical and scientific experience of the experts whose opinions were taken ranged between 10-40 years. The expert team evaluated the content validity of the instrument, whether they were sufficiently relevant and whether they adequate measured the variable in the study. The researcher then further modified the instrument based on the recommendations of experts. The opinions of some experts change certain items in knowledge and practice, while most experts focus on factors that influence pediatric pain management whereas, the opinions of experts were for divided the factors into domains, while others experts focus on knowledge questions more than other domains.

3.10. Reliability of the Study Tool

The aim of reliability is to ensure that the items of the questionnaire were simple, clear and understandable to identify the internal consistency of the instrument. The estimates of the reliability were determined through the use of the Alfa- Correlation Coefficient (Kimberlin and Winterstein, 2008). As well as reliability is the consistency with which an instrument measures the attribute. Reliability also concerns a measure's accuracy (Polit & et al.,2010). An acceptable level of internal consistency with a Cronbach's alpha of 0.7to 0.8 or high (Stanley & Pollard, 2013). For this study, the researcher chose a type of reliability internal consistency. According to research resources indicated that, If the same variable is measured below the same situations, a reliable measurement procedure produces corresponding measurements, and a measuring tool is able to produce harmonious numerical findings every once it is applied, pointing out that reliability is concerned with the consistency of the measurement.

Using Cronbach's coefficient alpha, alpha values were calculated for each question in the questionnaire. A table showing the Cronbach's Alpha values for each of the questionnaire's fields and the total number of items is provided below. There were a total of 0.92 Cronbach's Alpha values for each of the fields.

As a result, the validity of each section of the questionnaire is confirmed by this high range. As a result of the testing, the results are reliable and acceptable.

Table (2): "Reliability Statistics".

List.	Variables	No. of	Cronbach's	Estimation
1	Knowledge	31	0.71	Accepted
2	Attitude	35	0.86	Accepted
3	Practices	23	0.95	Accepted
4	Factors	29	0.87	Accepted
5	Total	118	0.92	Accepted

This table explain assessment of reliability.

3.11. Pilot Study

During the first two weeks of February, a pilot research was conducted (10th to 25th, 2021) . The pilot sample that was taken was composed of (30) nurse which represent (10%) of the total study population who are working in pediatric wards, which were excluded from the original sample of the study as some changes were made to refine the tool.

The initial pilot step's goal is to emphasize the following points:

1. The approval for sampling and the acknowledgement of competence.

2. Time estimation was essential for data collecting.

3. The detection of boundaries, which could be numerous during the data gathering.

Results of the Pilot Study:

The results of the pilot study discovered the following:

1. The time needed for filling the questionnaire was clearly estimated is nearly about 40-45 min.

2. The items of the study instrument were clear and understood.

3.12. Collection of Data Methods

Before conducting the study, all relevant licenses and approvals were obtained, including permissions from hospital directors prior to data collection. The study's objectives were explained to nurses from the pediatric wards of the selected hospitals who met the eligibility criteria and agreed to participate in the study. After that, the researcher distributed the questionnaire to all nurses present at the time who were willing to participate using self-administered questionnaires. The participants were requested to complete the surveys on their own time by the researcher. After one week, the researcher gathered the surveys and double-checked that they were all completed. If any of the questions were left unanswered, the researcher requested the respondent to fill them in. After collecting all questions, the researcher detached all of the top sheets from the original questionnaire, obliterating the participants' and hospitals' identities. The

researcher kept all the collected questionnaires for further data analysis , which passed from February 2021 – June 2021.

3.13. Statistical Data Analysis Approach:

To determine whether the study's objectives were met or not, the data from the current study was analyzed using the following statistical approach, which included the use of Statistical Package for Social Science (SPSS) statistic version 25 and Microsoft Excel 2013, as well as the following statistical methods for data analysis: To confirm the accuracy of the data entry, All data entered into the computer was thoroughly compared to the original questionnaires for each subject. The nurses' characteristics were described using frequencies, percentages, means, and standard deviations. Using ANOVA, T-test, correlation, and regression, data on the influences on nurses' pain management knowledge, attitudes, and practices were evaluated and presented.

3.14. Rating and Scoring

The statements of knowledge questions had two responses (True and False). Items that were correctly scored received a one (1), while items that were incorrectly scored received a zero (0).

The assessment of the level of knowledge items was estimated by calculating the cutoff points for the score of mean for each item in the scale, which rated into three level and scored as: Poor (0 – 0.33), Moderate (0.34 – 0.67), and good (0.68 – 1).

Attitudes questions also (Agree, Neutral, Disagree) according to the ideal answers for each question. It has been rated and scored according to the 3 points Likert scale, which include score (1) for an answer (Disagree), score (2) for an answer (Neutral) and score (3) for an answer (Agree). This scoring gave for all items. Depended on the Likert scale, scoring of practice was done as:

"Negative" (mean of score= 1-1.66).

"Neutral" (mean of score= 1.67-2.33).

"Positive" (mean of score= > 2.33).

The statements of Practices questions had five responses according to the 5 points Likert scale. In terms of frequency, they fall into the range of 1-5 (never to constant). Each item received a score of five (5) if it was used frequently, and one (1) if it was never used.

Data scoring for 5-Likert scales was utilized based on the extent of approval for 1st (1-1.79), 2nd (1.80-2.59), 3rd (2.60-3.39), 4th (3.40-4.19), and 5th (4.20-5) degrees. The intervals were coded into three levels: Poor [23-53], Moderate [54-84], and Good [85-115].

Factors questions had two answers (Yes, No), with the Yes items receiving two (2) points, and the No items receiving one (1).

3.15. Data analysis:

3.15.1. Descriptive Data Analysis Approach

Descriptive Statistics Analysis:

Summarization and presentation of descriptive statistics and characteristics of the studied group presented as mean, standard deviation and range for continuous variable when are applicable. Frequencies and proportions (%) used for the presentation of categorical (qualitative) variables, the following equations used to calculate the aforementioned statistics:

$$\text{Mean } (\bar{X}) = \frac{\Sigma X}{n}$$

a. Mean =

$$\% = \frac{\Sigma f}{n} \times 100\%$$

b. Percentage =

c. Standard deviation (S.D.): Where S is the standard deviation.

= mean of all values in the data set. X = a value in the data set.

N is the number of people in the sample (number of participants).

$$S = \sqrt{\frac{\sum(X - \overline{X})^2}{n-1}}$$

It was utilized to determine the degree to which study respondents responded to each of the study variables' items and to each of the important determinants for their mean. The standard deviation depicts the distribution of research respondents' responses for each of the study variables' items, as well as the main axes; the closer it is to zero, the more concentrated and less dispersed the responses are between the scales. (The reactions are not concentrated and dispersed if the standard deviation is one true and higher).

3.15. 2. Inferential Data Analysis

3.15.2.a. Analysis of Variance" (ANOVA): ANOVAs are used for comparing (testing) three or more means for statistical significance. They are statistical models used to investigate variations among group means and their associated procedures (such as "variance between and among groups"). While this test is similar in idea to multiple two-sample t-tests, it is less conservative (resulting in less type I error).), making it useful for a wider range of applications (Fisher & Yates, 2016). We looked at the connections between nurses' demographic data such as their age, educational level, marital status, place of employment and number of years on the job as well as their training course.

ANOVA calculated as follows:

Source of variance	Sum of squares	Degree of freedom	Mean of square	F-statistics
Between groups	$SSB = \sum \dfrac{(\sum X)^2}{n} - \dfrac{(\sum X)^2}{n}$	DFB=1	$\dfrac{SSB}{DFB}$	$\dfrac{MSB}{MSW}$
Within groups	$SSW = (\sum X)^2 - \dfrac{(\sum X)^2}{n}$	DF=N-K	$\dfrac{SSW}{DFW}$	
Total	$SST = (\sum X)^2 - \dfrac{(\sum X)^2}{n}$	DFT=N-1		

3.15.b. Independent t-test: An inferential statistical test known as the two sample t-test, independent-sample t-test, or student's t test is used to evaluate whether there is a statistically significant difference in mean values between unrelated groups. (According to Leard Statistics, 2019). It was utilized to find a link between nurses' levels of knowledge, attitudes, and practices and their demographic factors, such as gender and residency. It has the following formula:

$$t = \frac{\mu_A - \mu_B}{\sqrt{\left[\frac{\left(\Sigma A^2 - \frac{(\Sigma A)^2}{n_A}\right) + \left(\Sigma B^2 - \frac{(\Sigma B)^2}{n_B}\right)}{n_A + n_B - 2}\right] \cdot \left[\frac{1}{n_A} + \frac{1}{n_B}\right]}}$$

$(\Sigma A)^2$: Sum of data set A, squared (Step 2).
$(\Sigma B)^2$: Sum of data set B, squared (Step 2).
μ_A: Mean of data set A (Step 3)
μ_B: Mean of data set B (Step 3)
ΣA^2: Sum of the squares of data set A (Step 4)
ΣB^2: Sum of the squares of data set B (Step 4)
n^A: Number of items in data set A
n^B: Number of items in data set B

3.15.2.c. Regression Test :

Used to estimate the extent of the effects of factors on knowledge, attitude, and practices of nurses calculate as the following formula:

A linear regression line has the equation $Y = a + bX$, with X as the explanatory component and Y as the dependant factor.

3.15.2.d. Correlation coefficient:

An interval or ratio scale can be used to determine the link between two variables , and the Pearson correlation coefficient is a parametric test that can do just that. Pain management knowledge, attitudes, and practices among nurses are highly correlated, and this information can be used to identify any positive or negative relationships. At a significance level of, the P-value is found to be statistically significant (0.05)

as computed by :

$$r = \frac{K}{K-1}\left[1 - \frac{\sum Q1^2}{Qy2}\right]$$

Where:

r　= the estimation reliability.

K　= the total number of items in the test.

$Q1^2$　= the variance of each individual item.

Qy^2 = the variance of the total test score.

$\sum$　= the sum of.

3.16. Limitations of the study

The researcher faced specific barriers and difficulties in applying the empirical phase of this study mainly:

1. Only a few relevant studies and researches are available in Iraq.

2. The results of this study may not be reflective of all nurses who work in the Babylon province's private and governmental hospitals.

3. Because many nurses were transferred to epidemic wards and some of them were infected with covid-19, the Corona virus had an effect on a subset of nurse populations.

4. The results of this study could have been influenced by subject response bias due to the self-reporting nature of the questionnaire.

5. It is possible that the study population is overworked and will have little time to complete the questionnaire.
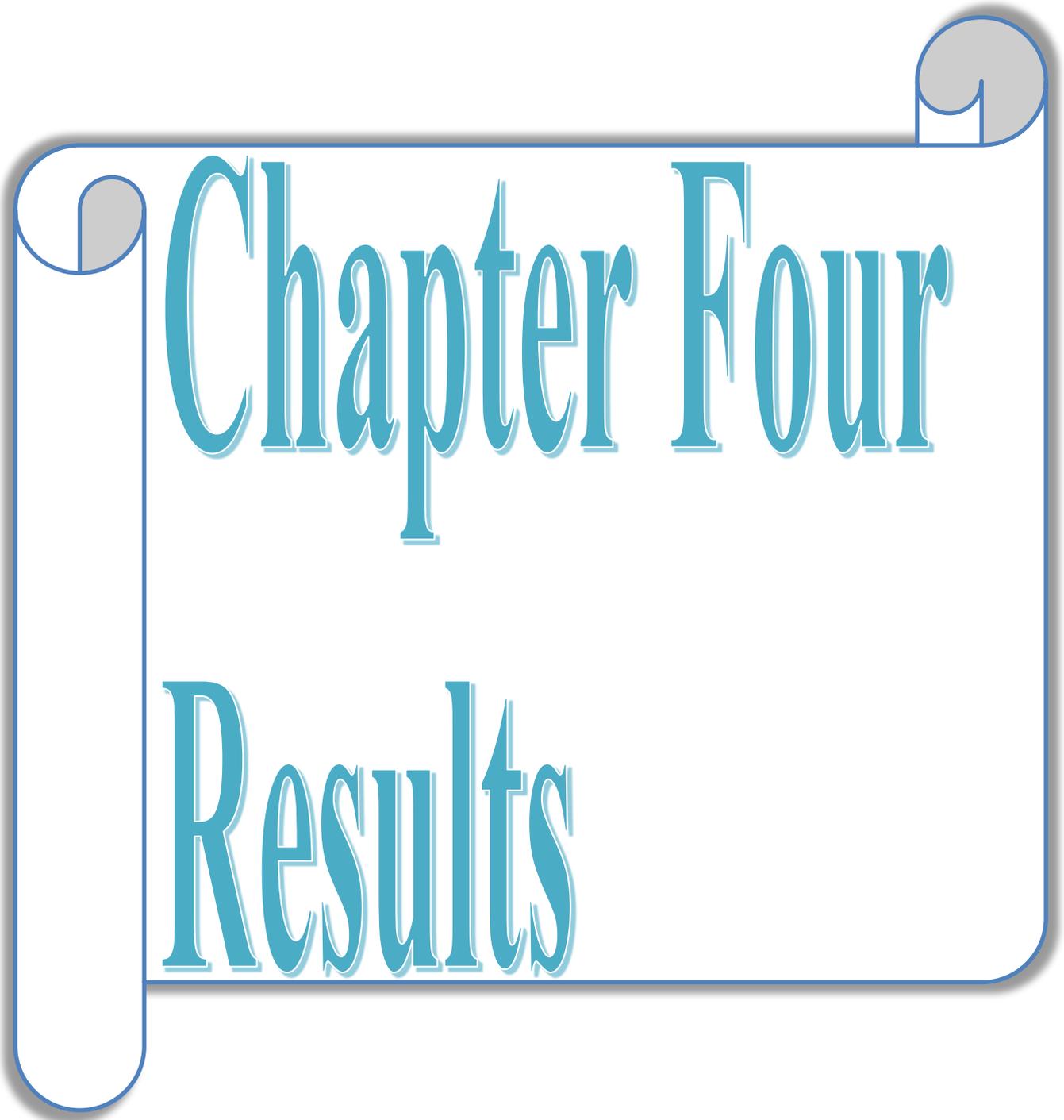
Chapter Four

Results

Chapter Four

Results of the Study

This chapter extensively introduces the outcomes after data collection represented as tables and figures according to objectives as follows:

4.1.Nurses Socio-demographic Characteristics

Age/years	Classification	Freq.	%
	20-29years old	223	74.3
	30-39 years old	51	17.0
	40-49years old	16	5.3
	≥50 years old	10	3.3
Gender	Male	96	32.0
	Female	204	68.0
Residents	Urban	212	70.7
	Rural	88	29.3
Marital Status	Single	91	30.3
	Married	202	67.3
	Divorced	5	1.7
	Widowed	2	0.7
Education Level	School Nursing	61	20.3
	Diploma	167	55.7
	Bachelor's	54	%0.18
	Post-graduated	18	%0.6
Training Sessions	Yes	36	12.0
	No	264	88.0

Workplace	Emergency	54	18.0
	Medical Wards	61	20.3
	Surgical Wards	27	9.0
	Premature Unit	51	17.0
	PICU	41	13.7
	NICU	44	14.7
	Thalassemia	22	7.3

Findings show participants age, the mean age is 27.98±6.014, the age 20-29 years old (*n=223*; 74.3 %), followed by those who are age 30-39 years and old (*n=51*; 17.0 %), followed by those who are age 40-49 years and older (*n=16*; 5.3%) and those who age >50 years old (*n=10*; 3.3%).

Respect to the gender, findings indicate that female nurses were predominated (*n=204*; 68.0%), compared with those who are male nurses (*n=96*; 32.0%).

In terms of residents, findings demonstrated that the urban residents records the highest percentage (*n=212*; 70.7%), compared with those who are residents in rural areas (*n=88*; 29.3%).

Marital status related findings, the married nurses were records the highest percentage (*n=202*; 67.3%), followed by those who are single (*n=91*; 30.3), followed by those who are divorced (*n=5*; 1.7%), and those who are widowed (*n=2*; 0.7%).

In regards with workplace, most nurses expressed work in medical wards (*n=61*; 20.3%), followed by those who are work in emergency (*n=54*; 18.0%), followed by those who are work in premature unit (*n=51*; 17.0%), those who are work in NICU (n=44; 14.7%), those who are work in PICU (*n=41*; 13.7%), followed by those who are work in surgical wards (n=*27*; 9.0%), and those who are work in thalassemia (n=*22*; 7.3%).

Concerning years of experience, most nurses had less than five years (*n=181*; 60.3%), followed by those who are 5-10 years (*n=78*; 26.0%), and followed by those who are >10 years (*n=41*; 13.7%).

In related to experience in paediatric wards, findings indicate that the majority of nurses had less than five years (*n=297*; 99.0%), followed by those who are 5-10 years (*n=2*; 0.7%), and followed by those who are >10 years (*n=1*; 0.3%).

Respect to the education level, findings indicate that the diploma nursing graduated records the highest percentage (*n=167*; 56.7%), followed by those who are school nursing (*n=61*; 20.3%), followed by those who are bachelors nursing graduated (*n=54*; 18.0%), and followed by those who are postgraduate (*n=18*; 6.0%).

In terms of training sessions, findings demonstrated that the nurses no attending training sessions (*n=264*; 88.0%), compared with those who are attend training sessions (*n=36*; 12.0%).

4.2. Nurses Knowledge related to Pain Management of Hospitalized Children

List	Knowledge items	True		False		M.S. ± SD	Ass.
		F	%	F	%		
1	Pain is unpleasant sensory and emotional experience associated with actual or potential tissue damage	222	74.0	78	26.0	0.74±0.446	Good
2	Pain should be assessed before and after administering pain medications .	262	87.3	38	12.7	0.87±0.349	Good
3	Physiological pain assessment is a more suitable method than behavioral and self-reporting assessment of pain in children.	53	17.7	247	82.3	0.17±0.382	Poor
4	The most likely reason a patient with pain would request increased doses of pain medication is requesting more staff attention	89	29.7	211	70.3	0.29±0.457	Poor
5	Children's pain remains, under-diagnosed and under-treated and has significant physical, psychological, and financial consequences.	262	87.3	38	12.7	0.87±0.336	Good
6	Giving narcotics on a regular schedule is preferred over as needed (PRN) schedule for continuous pain	140	46.7	160	53.3	0.46±0.499	Moderate
7	Ibuprofen and other non-steroidal anti-inflammatory agents are effective analgesics for mild to Fair pain.	227	75.7	73	24.3	0.75±0.454	Good
8	Providing comfort, changing position and massage may help to reduce muscle tension which in turn, can reduce pain.	252	84.0	48	16.0	0.84±0.387	Good
9	Distraction children by using music or story telling during invasive procedure will help to decrease children pain	216	72.0	84	28.0	0.72±0.468	Good
10	Non-pharmacological methods make pain more tolerable and give children a greater sense of control	189	63.0	111	37.0	0.63±0.503	Moderate

	over painful situation						
11	It is important to frequently assess and document pain in patients able to communicate	15	5.0	285	95.0	0.50±0.225	Moderate
12	The most accurate judge of the pain intensity is the Patient himself	207	69.0	93	31.0	0.69±0.460	Good
13	Lack of pain expression does not mean lack of pain	186	62.0	114	38.0	0.62±0.486	Moderate
14	Increasing analgesic requirements are signs that the patient is becoming addicted to the narcotic	40	13.3	260	86.7	0.13±0.340	Poor
15	children need better attention for managing their pain	255	85.0	45	15.0	0.85±0.354	Good
16	Intramuscular (IM) injection is the best way to provide pain relief medication	114	38.0	186	62.0	0.38±0.487	Moderate
17	Necessity of continuous pain assessment and efficacy of the therapy, for assuring the effectiveness of treatment.	237	79.0	63	21.0	0.79±0.403	Good
18	Parents should not be present during painful procedures	201	67.0	99	33.0	0.67±0.470	Moderate
19	After the initial recommended dose of opioid analgesic, subsequent doses should be adjusted in accordance with the individual patient's response.	183	61.0	117	39.0	0.61±0.488	Moderate
20	Pediatric patients having severe chronic pain often need higher dosages of pain meds than patients with acute pain.	189	63.0	111	37.0	0.63±0.481	Moderate
21	The cause of the baby's/child's pain is always a disease	99	33.0	201	67.0	0.33±0.472	Poor
22	The recommended route of administration of opioid analgesics to children with Continuous persistent pain is intravenous	86	28.7	214	71.3	0.28±0.451	Poor
23	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity	81	27.0	219	73.0	0.27±0.446	Poor
24	children may sleep in spite severe pain	99	33.0	201	67.0	0.33±0.473	Poor
25	The usual duration of analgesia of Morphine IV is 4-5 hours.	82	27.3	218	72.7	0.27±0.444	Poor
26	Respiratory depression rarely occurs in children who have been receiving stable doses of opioids over months	150	50.0	150	50.0	0.50±0.500	Moderate
27	Young infants, less than 6 months of age, cannot tolerate opioids for pain relief.	31	10.3	269	89.7	0.10±0.336	Poor
28	Children less than 8 years old cannot reliably report pain so nurses should rely solely on parent's assessment of the child's pain intensity	38	12.7	262	87.3	0.12±0.343	Poor
29	To be effective, heat and cold should be applied directly to the painful area	4	1.3	296	98.7	0.13±0.114	Poor
30	It is important giving analgesics for patients with reduced facial expression.	242	80.7	58	19.3	0.8±0.400	Poor
31	The side effects of narcotics should be observed at least 20 minutes after administration	103	34.3	197	65.7	0.34±0.475	Moderate

"(M.s.) Mean of score, (SD) Standard deviation, Level of Assessment (Poor (M.s.= 0 – 0.33), Moderate (M.s.= 0.34 – 0.67), Good (M.s. 0.68 – 1)"

Take into account statistical analysis of mean, this table demonstrated that the nurses knowledge related to pain management of hospitalized children were poor level at most of items of the scale (M.s.= 0 – 0.33) except, items number (6, 10, 11, 13, 18, 16, 18, 19, 20, 26, and 31) the responses were moderate level (M.s.= 0.34 – 0.67). As well as, the items

number (1, 2, 5, 7, 8, 9,12, and 17) the nurses expressed a good level of knowledge (M.s. 0.68 – 1).

Overall, the findings indicate that the (52 %) of nurses were poor knowledge related pain management of hospitalized children, followed by those who are moderate knowledge (47 %), and followed by those who are pass knowledge (1 %) (Fig. 4-1).

Figure4-1:Overall Assessment of Knowledge related to Pain Management of Hospitalized Children
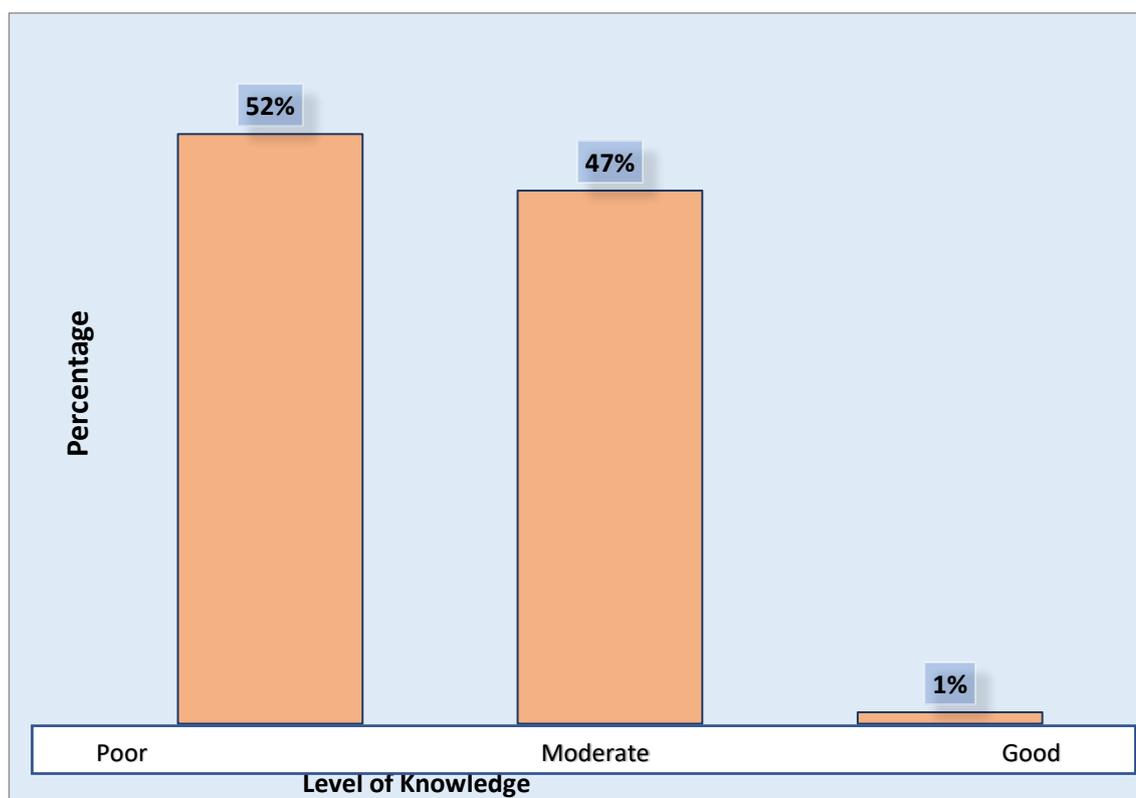
4.3. Nurses Attitudes towards to Pain Management of Hospitalized Children

List	Attitudes items	Agree		Undecided		Disagree		M.S. ± SD	Ass.
		F	%	F	%	F	%		
1	Pain is seen in the child behavior	59	19.7	59	19.7	182	60.7	1.59±0.798 347	Positive
2	Child who can be distracted from pain usually do not have severe pain	19	6.3	118	39.3	163	54.3	1.52±0.614	Negative
3	Non-pharmacological interventions are very effective for mild to Neutral pain not severe pain.	30	10.0	105	35.0	165	55.0	1.55±0.670	Negative
4	Medical hospitalized children usually do not experience pain which is as intense as that experienced by surgical hospitalized children.	150	50.0	108	36.0	42	14.0	2.36±0.729	Positive
5	Using pain assessment tools usually makes nursing more complicated and consumes time for other ward activities.	41	13.7	122	40.7	137	45.7	1.68±0.737	Neutral
6	Child who complain of pain often, will be seeking staff attention.	32	10.7	91	30.3	177	59.0	1.51±0.681	Negative
7	The nurses" personal experience with pain affects the way the nurse manages pain on children.	175	58.3	97	32.3	28	9.3	2.49±0.661	Positive
8	Pain management education received during nurse training is adequate for effective pain management post qualification.	179	59.7	89	29.7	32	10.7	2.49±0.681	Positive
9	The legal processes required to obtain and administer narcotics makes it difficult to deliver effective pain management.	37	12.3	116	38.7	147	49.0	1.63±0.693	Neutral
10	Nurses are best judges of the patient's pain intensity because they spend 24 hours with the patient.	20	6.7	87	29.0	193	64.3	1.42±0.615	Negative
11	A child with medical health problem experience pain as often as surgical child.	72	24.0	113	37.7	115	38.3	1.85±0.777	Neutral
12	Because children are not medically educated cannot give a reliable report of their pain.	30	10.0	68	22.7	202	67.3	1.42±0.667	Negative
13	Child family support is necessary to relive their pain.	214	71.3	73	24.3	13	4.3	2.67±0.555	Positive
14	The child may deny pain to avoid analgesia by painful route.	182	60.7	93	31.0	25	8.3	2.52±0.646	Positive
15	Infants and children experience pain equal to that experienced by adults	110	36.7	125	41.7	65	21.7	2.15±0.750	Neutral
16	The child with pain should be encouraged to endure as much pain as possible before resorting to a pain relief measure	176	58.7	92	30.7	32	10.7	2.48±0.681	Neutral
17	Pain management and pain relief are of priority in children treatment	198	66.0	88	29.3	14	4.7	2.61±0.575	Positive
18	Children have the right to appropriate assessment and management of their pain	116	38.7	118	39.3	66	22.0	2.16±0.762	Neutral
19	It is necessary to provide local anesthetic medicine to pediatric patients before performing minor or brief invasive procedures	156	52.0	113	37.7	31	10.3	2.41±0.671	Positive
20	Assessment and control of child pain lead to improved his/her parents satisfaction	194	64.7	88	29.3	18	6.0	2.58±0.603	Positive
21	Failure to assess and manage the child's pain affects his body and mind in the long term	163	54.3	105	35.0	32	10.7	2.43±0.678	Positive
22	The nurse's physical and mental fatigue can affect children pain relief	148	49.3	116	38.7	36	12.0	2.37±0.689	Positive
23	To ensure patient's comfort and pain relief is one of the most important tasks of nurses	185	61.7	89	29.7	26	8.7	2.53±0.651	Positive
24	Available tools for measurement of pain are the best for determining pain severity in children	150	50.0	122	40.7	28	9.3	2.40±0.665	Positive
25	When the necessary procedures have been done for the patient, the persistence of pain does not	71	23.7	80	26.7	149	49.7	1.74±0.831	Neutral

	cause problems							
26	Measurement and control of child's pain can affect the healing process and reduces the hospital stay	183	61.0	80	26.7	37	12.3	2.48±0.706	Positive
27	Measurement and control of pain in child leads to improved quality of child's life	202	67.3	65	21.7	33	11.0	2.56±0.683	Positive
28	The use of placebo is important in determining if the child pain is real.	44	14.7	75	25.0	181	60.3	1.54±0.737	Neutral
29	When a child complains of pain the best management is to assess the genuineness of the pain.	26	8.7	61	20.3	213	71.0	1.37±0.639	Negative
30	Observable changes in vital signs must be relied on to verify child complain of severe pain.	21	7.0	59	19.7	220	73.3	1.33±0.608	Negative
31	To better assess child pain, the nurse can discuss with her/his parents	192	64.0	69	23.0	39	13.0	2.51±0.681	Positive
32	Like other vital signs, pain score should be Documented	175	58.3	85	28.3	40	13.3	2.45±0.684	Positive
33	Communicating with and educating child's parents play an effective role in relieving pain	158	52.7	83	27.7	59	19.7	2.39±0.720	Positive
34	Using pain assessment tools for determining child's pain lead to an appropriate method of pain relief	166	55.3	103	34.3	31	10.3	2.45±0.650	Positive
35	Evaluation and measurement of child's pain should be considered as one of the vital signs when examining the child	161	53.7	119	39.7	20	6.7	2.47±0.603	Positive

"(M.s.) Mean of score, (SD) Standard deviation, Level of Assessment (Negative (M.s.= 1-1.66), Neutral (M.s.=1.67-2.33), Positive (M.s. ≥2.34)"

In the light of statistical analysis cut off point, this table illustrated that the nurses attitudes towards pain management of hospitalized children uneven between High to Low attitudes.

Overall, the findings indicate that the (75 %) of nurses were neutral attitudes towards pain management of hospitalized children, followed by those who are positive attitudes (21 %), and followed by those who are negative attitudes (4 %) (Fig. 4-2).
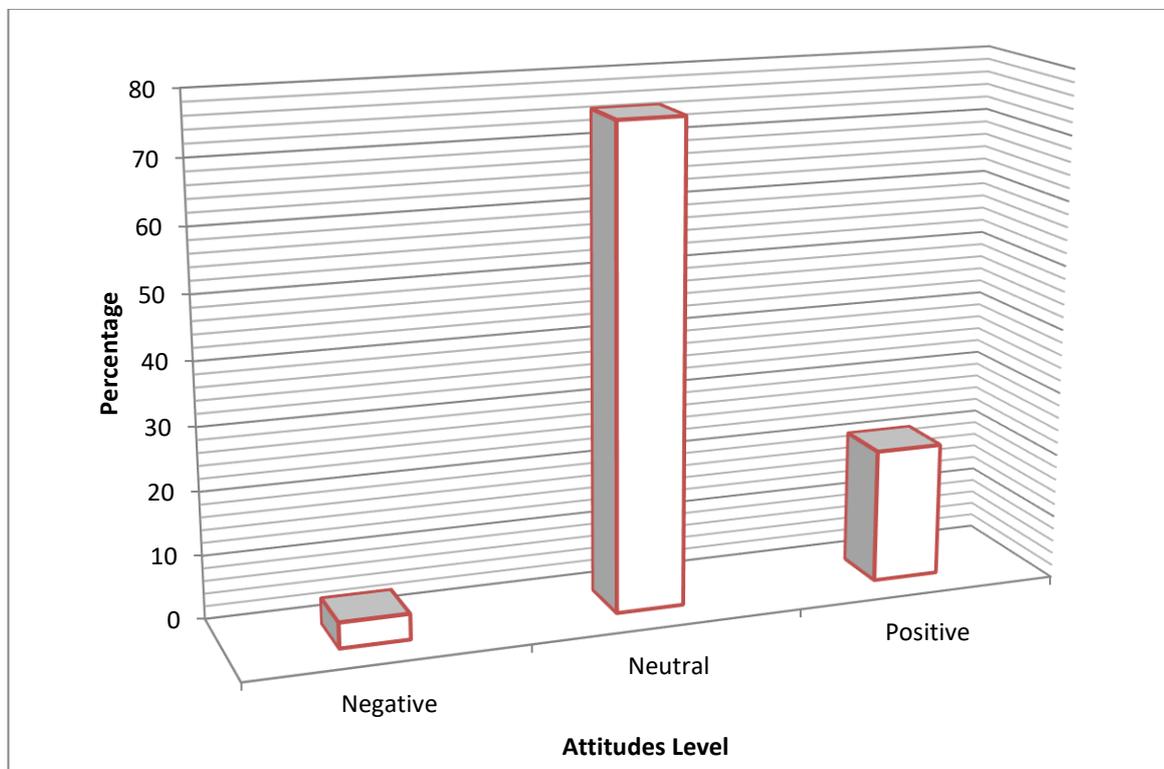
Figure4-2:Overall Assessment of Attitudes towards Pain Management of Hospitalized Children

4.4. Nurses Practices towards to Pain Management of Hospitalized Children

List	Practice items	Responses	F	%	M.s. ± SD	Ass.
1	After surgery you observe behavioral change in children (such as being awake, crying, limit body movement, withdrawal, agitation, or not talking) in order to assess their pain.	Never	68	22.7	2.89±1.251	Occasionally
		Infrequently	41	13.7		
		Occasionally	53	17.7		
		Frequently	131	43.7		
		Constantly	7	2.3		
2	Observe physiological change in children (such BP, respiration rate, heart rate, temperature, or O2saturation) in order to assess their pain.	Never	69	23.0	2.89±1.265	Occasionally
		Infrequently	42	14.0		
		Occasionally	49	16.3		
		Frequently	132	44.0		
		Constantly	8	2.7		
3	Assess children pain at least once a shift	Never	65	21.7	2.89±1.233	Occasionally
		Infrequently	45	15.0		
		Occasionally	52	17.3		
		Frequently	133	44.3		
		Constantly	5	1.7		
4	Use self-reporting pain scale (such as visual analog scale (VAS), FACE scale) for the assessment of children pain in practice	Never	291	97.0	1.11±0.647	Never
		Infrequently	1	.3		
		Occasionally	0	0		
		Frequently	0	0		
		Constantly	8	2.7		
5	Use a behavioral pain scale such as FLACC (Face, Legs, Activity, Cry, and Consolability) for assessment of young children pain in your nursing practice.	Never	289	96.3	1.13±0.700	Never
		Infrequently	2	.7		
		Occasionally	0	0		
		Frequently	0	0		
		Constantly	9	3.0		
6	Administer pain medication to children as order by a doctor around the clock.	Never	281	93.7	1.17±0.745	Never
		Infrequently	7	2.3		
		Occasionally	2	.7		
		Frequently	0	0		
		Constantly	10	3.3		
7	Observe the side effect of pain medication (such as morphine) after giving it to the child	Never	280	93.3	1.15±0.675	Never
		Infrequently	11	3.7		
		Occasionally	1	.3		
		Frequently	0	0		
		Constantly	8	2.7		
8	Observe the following side effect such as respiratory distress, urticaria, nausea, vomiting, if a child receives opioids drug.	Never	261	87.0	1.23±0.739	Never
		Infrequently	24	8.0		
		Occasionally	7	2.3		
		Frequently	0	0		
		Constantly	8	2.7		
9	Administer pain medication to children by your own judgment.	Never	258	86.0	1.24±0.756	Never
		Infrequently	29	9.7		
		Occasionally	4	1.3		
		Frequently	0	0		
		Constantly	9	3.0		
10	Administer additional pain medication to relive pain when needed (PRN)	Never	293	97.7	1.08±0.563	Never
		Infrequently	1	.3		
		Occasionally	0	0		
		Frequently	0	0		
		Constantly	6	2.0		
11	Reassess children pain after giving pain medication in order to evaluate the effectiveness of pain medication	Never	88	29.3	2.76±1.326	Occasionally
		Infrequently	32	10.7		
		Occasionally	54	18.0		
		Frequently	115	38.3		

		Constantly	11	3.7		
12	Distract children from pain by using several techniques(such as given them toy for playing, listen to music, telling stories touching them.)	Never	90	30.0	2.67±1.302	Occasionally
		Infrequently	38	12.7		
		Occasionally	61	20.3		
		Frequently	101	33.7		
		Constantly	10	3.3		
13	Talk with children with a soft voice to comfort them when they are in pain.	Never	50	16.7	2.92±1.179	Occasionally
		Infrequently	65	21.7		
		Occasionally	50	16.7		
		Frequently	129	43.0		
		Constantly	6	2.0		
14	Arrange the environment to be calm and quite in order to help children sleep easily.	Never	53	17.7	2.96±1.202	Occasionally
		Infrequently	55	18.3		
		Occasionally	50	16.7		
		Frequently	134	44.7		
		Constantly	8	2.7		
15	Advise parents and give them opportunities to help in reducing their children pain.	Never	62	20.7	2.94±1.240	Occasionally
		Infrequently	45	15.0		
		Occasionally	49	16.3		
		Frequently	136	45.3		
		Constantly	8	2.7		
16	Ask parent to be involved in assessing their children pain (such asking children if he /she has pain by using familiar word and language).	Never	47	15.7	2.94±1.169	Occasionally
		Infrequently	64	21.3		
		Occasionally	55	18.3		
		Frequently	126	42.0		
		Constantly	8	2.7		
17	After surgery you provide comfortable position to help relive children pain.	Never	53	17.7	3±1.213	Occasionally
		Infrequently	53	17.7		
		Occasionally	43	14.3		
		Frequently	143	47.7		
		Constantly	8	2.7		
18	Often tell children to tell the nurse when they are in pain.	Never	81	27.0	2.66±1.28	Occasionally
		Infrequently	62	20.7		
		Occasionally	42	14.0		
		Frequently	107	35.7		
		Constantly	8	2.7		
19	Ask and help children to support the painful areas when moving or coughing after surgery.	Never	74	24.7	2.84±1.268	Occasionally
		Infrequently	38	12.7		
		Occasionally	55	18.3		
		Frequently	126	42.0		
		Constantly	7	2.3		
20	I discuss with my colleagues the methods for relieving pediatric patients' distress.	Never	64	21.3	2.85±1.213	Occasionally
		Infrequently	46	15.3		
		Occasionally	69	23.0		
		Frequently	113	37.7		
		Constantly	8	2.7		
21	I would consider adjusting schedules of procedures and methods of providing interventions to promote the comfort of pediatric patients.	Never	63	21.0	2.85±1.200	Occasionally
		Infrequently	44	14.7		
		Occasionally	73	24.3		
		Frequently	113	37.7		
		Constantly	7	2.3		
22	Ask about pain regularly; assess pain systematically	Never	70	23.3	2.84±1.237	Occasionally
		Infrequently	38	12.7		
		Occasionally	69	23.0		
		Frequently	115	38.3		
		Constantly	8	2.7		
23	You administer Injection narcotics under medical supervision.	Never	70	23.3	1.58±0.859	Never
		Infrequently	38	12.7		
		Occasionally	69	23.0		

| | | Frequently | 115 | 38.3 | | |
| | | Constantly | 8 | 2.7 | | |

"(M.s.) Mean of score, (SD) Standard deviation, Level of Assessment (Never=1-1.79; Infrequently=1.80-2.59; Occasionally= 2.60-3.39; Frequently=3.40-4.19; Constantly=4.20-5"

In light of the statistical analysis of the average results, the table shows that nurses' practices related to paediatric pain management in the hospital vary between never and sometimes. The items number (1, 2, 3, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, and 22) were occasionally responses and the remaining items were responded as never.

Table 4-5: Overall Assessment Nurses Practice Concerning Pain Management of Hospitalized Children

Level of Practice	Freq.	%	M ± SD
Weak	155	51.7	52.66±24.274
Moderate	137	45.7	
Good	8	2.7	
Total	300	100.0	

M: Mean for total score, S.d: Standard Deviation for total score
(Poor= 23-53, Moderate= 54-84, Good= 85-115)

The analysis of practice related pain management was demonstrate that nurses are experienced at mean ± S.d.= 52.66±24.274; the nurses experienced weak level of practice (*n=155*; %=51.7)

4.6. Factor Affecting Pain Management

4-6-1. Orgnizational factors

Findings in the figure (4-6-1) showed according to mean that Are pain management standards or protocols in hospital and designated area for charting pain (mean=1.04) were the most common factors influenced pain management related to organization, besides lack of standard pain

assessment tool and protocols for pain management were the most affects of pain management (mean= 1.05 and 1.06) respectively.
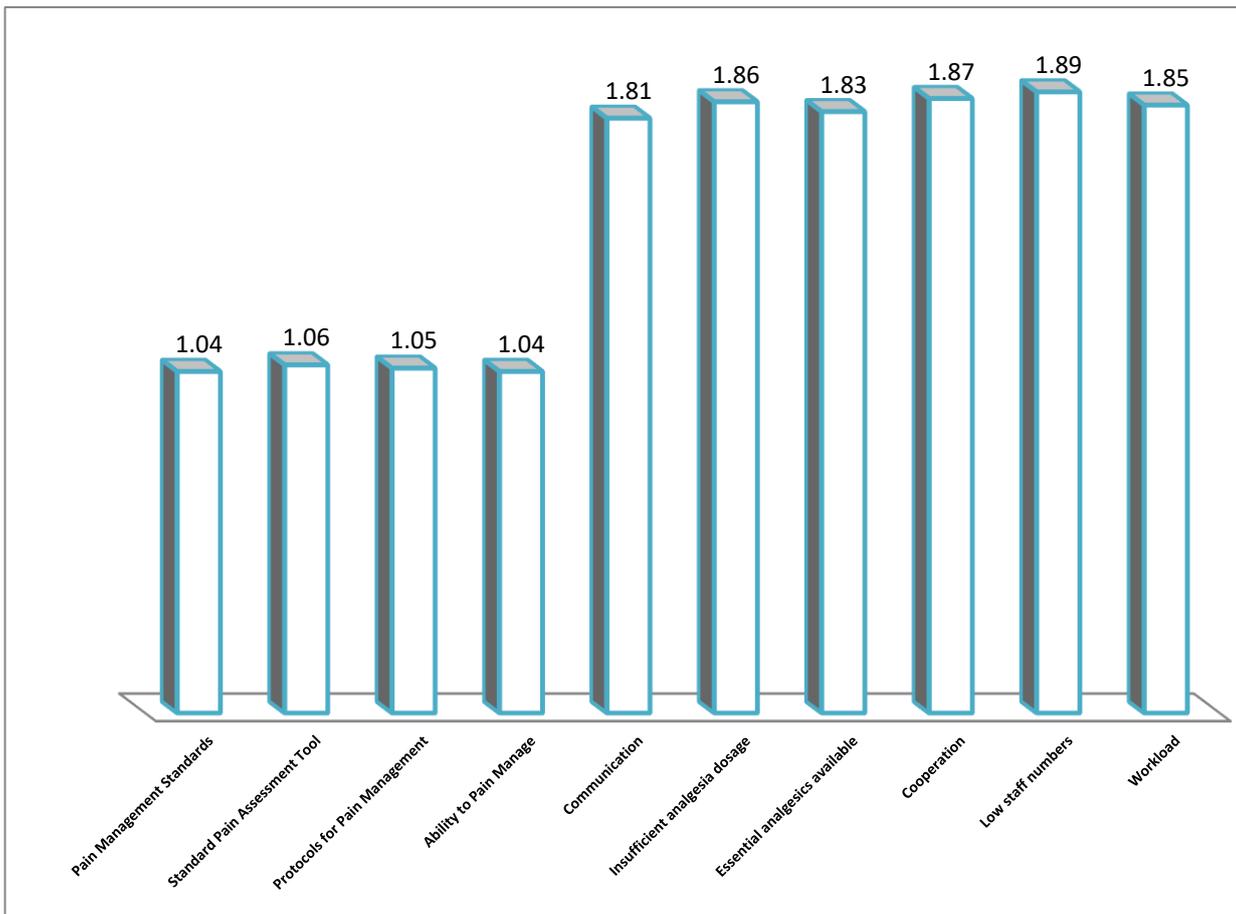
Figure 4-6-1:Factors related Organization

4.6.2.Parents factors

Findings in the figure (4-6-2) showed according to mean that Parents' reluctance to have children receive medications affects ability to manage pain of children (mean=1.16), were the most common factors influenced pain management related to parents.
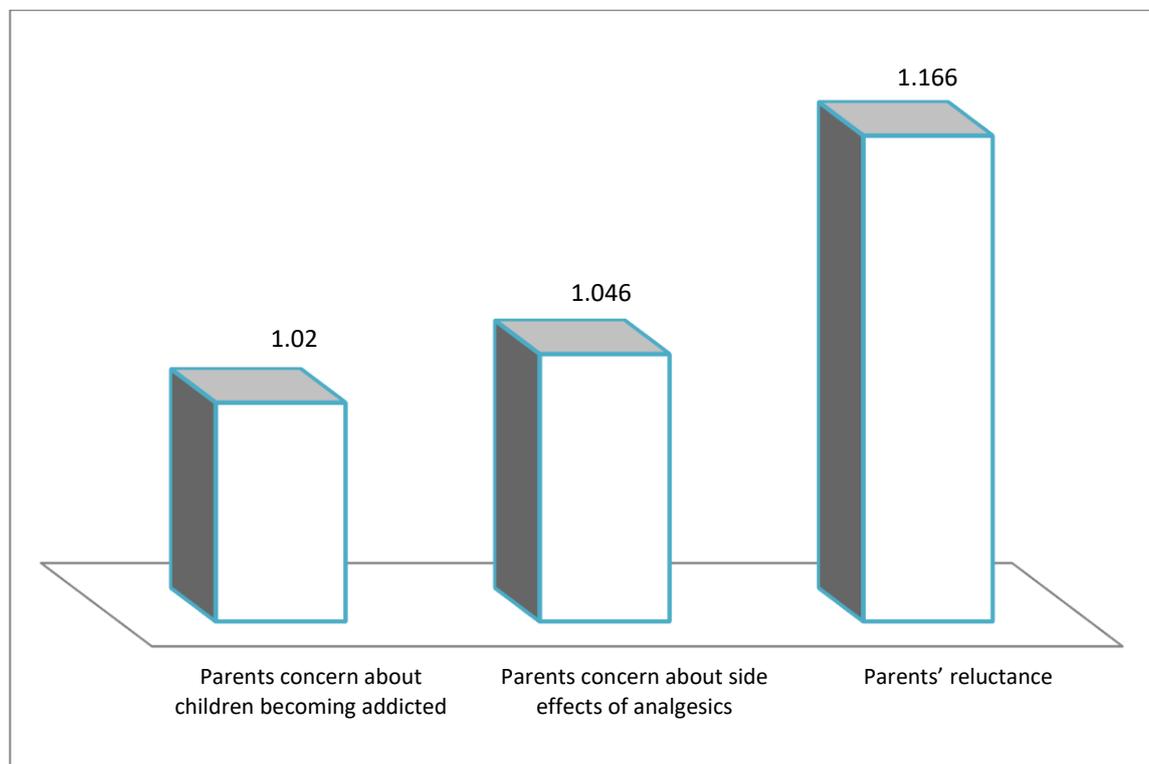
Figure 4-6-2:Factors related Parents

4.6.3.Children factors

Patient inability to communicate affects ability to manage pain of children; as shown in figure (4-6-3) were the most common factors influenced pain management (mean=1.45), followed by those who are reluctance to report pain affects ability to manage pain and reluctance to take pain medications affects ability to manage pain (1.47 and 1.48) respectively.

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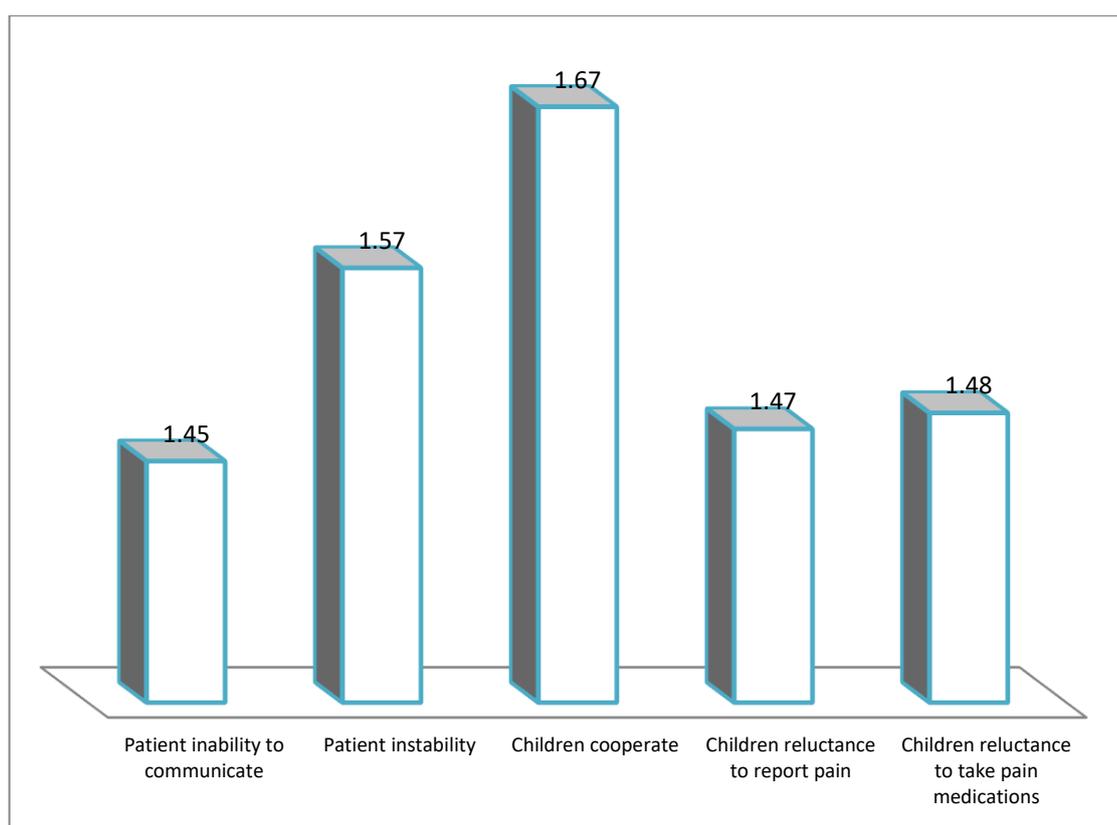
Figure 4-6-3:Factors related Children

4.6-4.Nurses factors

Findings in the figure (4-6-4) showed according to mean that This factor represented in lack of nursing curriculum in their studied (1.04) as indicated in figure (4-6-4)), lack of undertaken any further continue education (training) (1.05), lack familiarity with analgesics affects ability to manage the pain of children (1.07), lack of training affects your ability to manage pain of children (1.08), lack guidelines for managing children pain (1.15), and followed by Low priority of pain management by unit team affects ability to manage pain of children (1.45) were the most common factor influenced pain management.
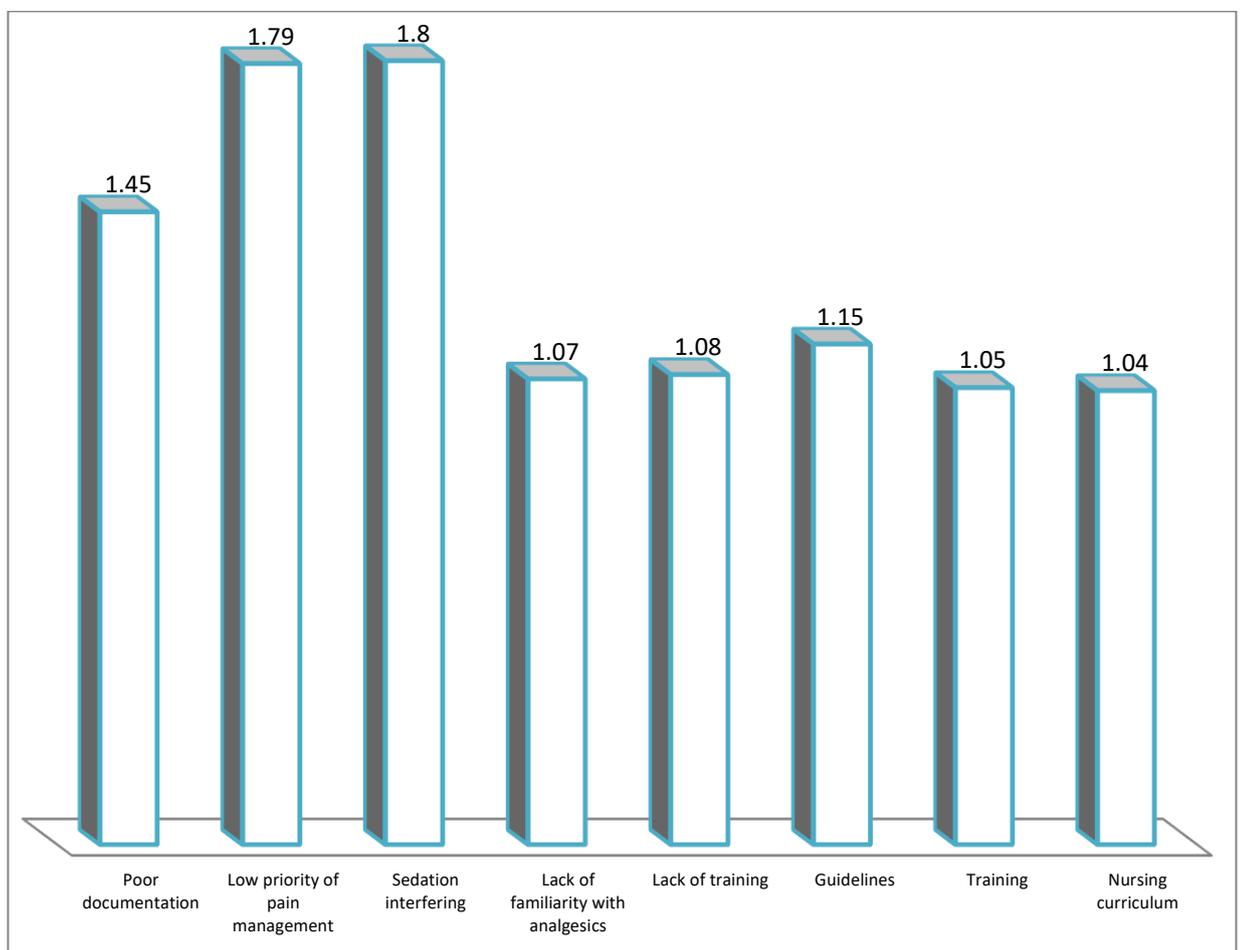
. **Figure 4-6-4:Factors related nurses**

4.6.5.Cultural factors

Findings in the figure (4-6-5) showed according to mean that parents belief that pain medications should be given as little as possible affects nurses ability to manage pain of children (1.29) were the most common factors influenced pain management.
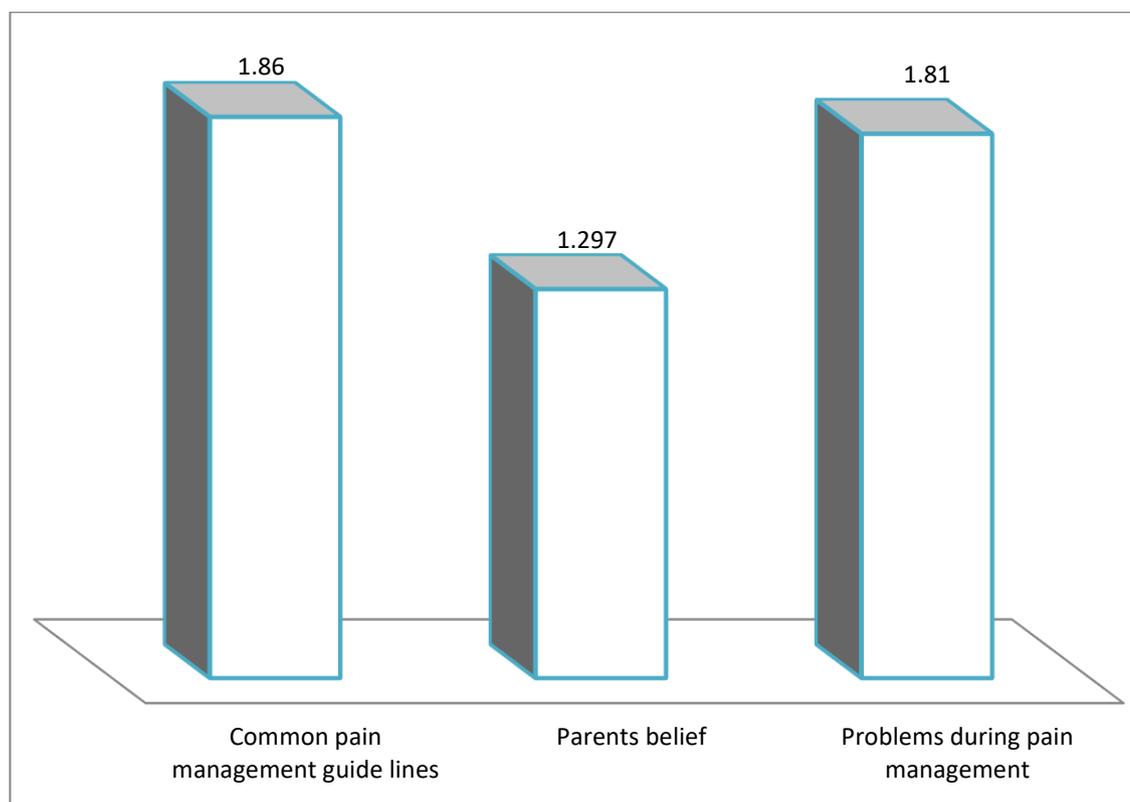
. **Figure 4-6-5:Factors related Culture**

4.7. Differences in Nurses Knowledge with regard Socio-demographic Characteristics

Table 4-7-1: Differences in Knowledge with regard Nurses Age (*n=300*)

Age Variables	Source of variance	Sum of Squares	d.f	Mean Square	F	p≤ 0.05
Knowledge	Between Groups	.046	3	.015	1.345	.260
	Within Groups	3.389	296	.011		No-sig.
	Total	3.435	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there are no-significant differences in nurses knowledge with regard age (*p=0.260*).

Table 4-7-2: Differences in Knowledge with regard Nurses Gender (*n=300*)

Knowledge	Gender	Mean	S.D	t-value	d.f	p≤ 0.05
	Male	0.4963	0.112	1.555	298	*.049*
	Female	0.388	0.104			*Sig.*

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were significant differences in nurses knowledge with regard gender (*p=0.049*), male nurses (*M ± SD=0.49±0.112*) were more knowledgeable than the female nurses (*M ± SD=0.38±0.104*).

Table 4-7-3: Differences in Knowledge with regard Nurses Residents (*n=300*)

Knowledge	Residents	Mean	S.D	t-value	d.f	p≤ 0.05
	Urban	0.491	0.105	0.047	298	*.962*
	Rural	0.490	0.112			*No-sig.*

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were no-significant differences in nurses knowledge with regard residents (*p=0.962*).

Table 4-7-4: Differences in Knowledge with regard Nurses Marital Status (*n=300*)

Marital Variables	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Knowledge	Between Groups	.070	3	.023	2.048	.107
	Within Groups	3.365	296	.011		No-sig.
	Total	3.435	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses knowledge with regard marital status (*p=0.107*).

Table 4-7-5: Differences in Knowledge with regard Nurses Workplace (*n=300*)

Workplace Variables	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Knowledge	Between Groups	.150	6	.025	2.231	.040
	Within Groups	3.285	293	.011		Sig.
	Total	3.435	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is significant differences in nurses knowledge with regard workplace (*p=0.040*), nurses who work in NICU were more knowledgeable than those who work in other workplaces.
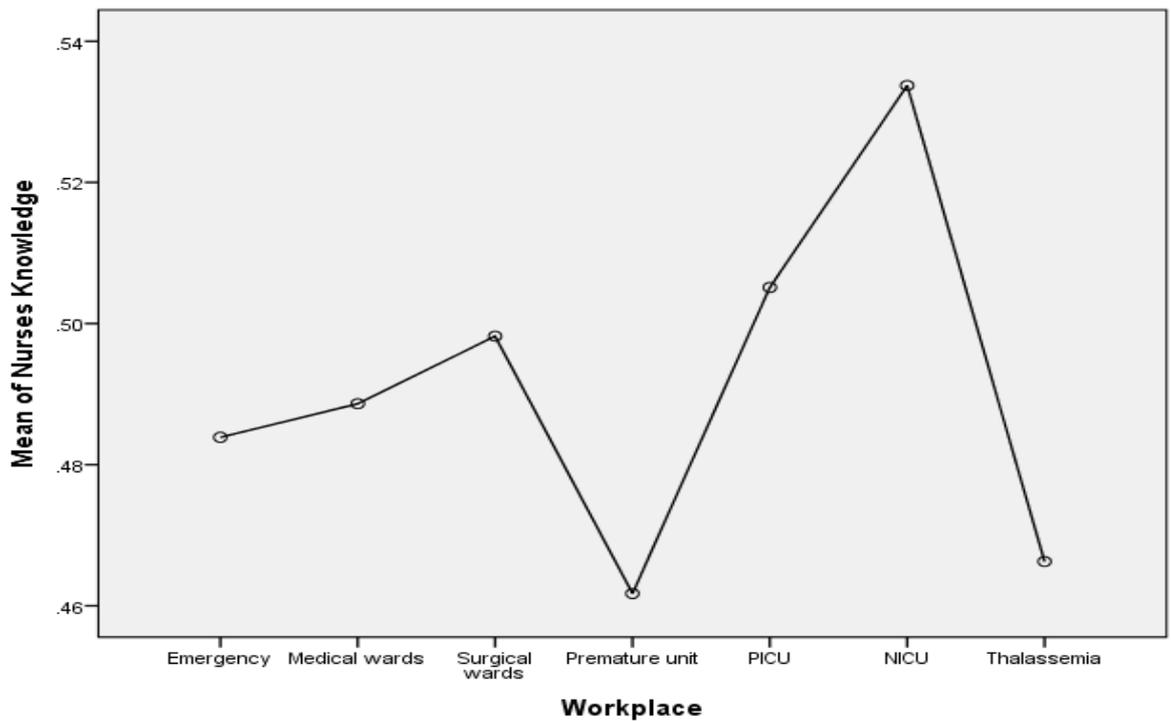
Table 4-7-6: Differences in Knowledge with regard Nurses Years of Experience (*n=300*)

Experience Variables	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Knowledge	Between Groups	.048	2	.024	2.121	.122
	Within Groups	3.387	297	.011		No-sig.
	Total	3.435	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses knowledge with regard years of experience (*p=0.122*).

Table 4-7-7: Differences in Knowledge with regard Nurses Years of Experience in Paediatric Wards (*n=300*)

Experience Wards	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Knowledge	Between Groups	.262	2	.131	12.26	.000
	Within Groups	3.173	297	.011		Sig.
	Total	3.435	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is highly significant differences in nurses knowledge with regard years of experience in pediatric wards (*p=0.000*), nurses who had 10 years of experience and more were more knowledgeable than those less experience.
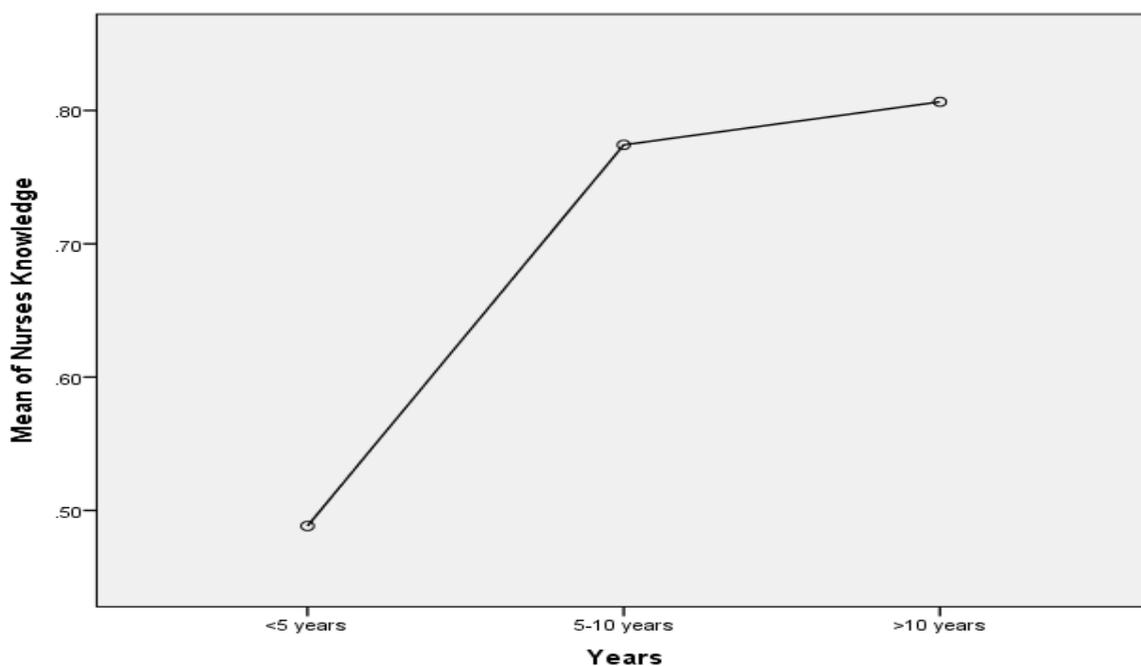
Table 4-7-8: Differences in Knowledge with regard Nurses Education Level (*n=300*)

Education level	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Knowledge	Between Groups	.265	4	.066	6.152	.000
	Within Groups	3.171	295	.011		Sig.
	Total	3.435	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is highly significant differences in nurses knowledge with regard level of education (*p=0.000*), nurses who are postgraduate were more knowledgeable than those who under graduated.
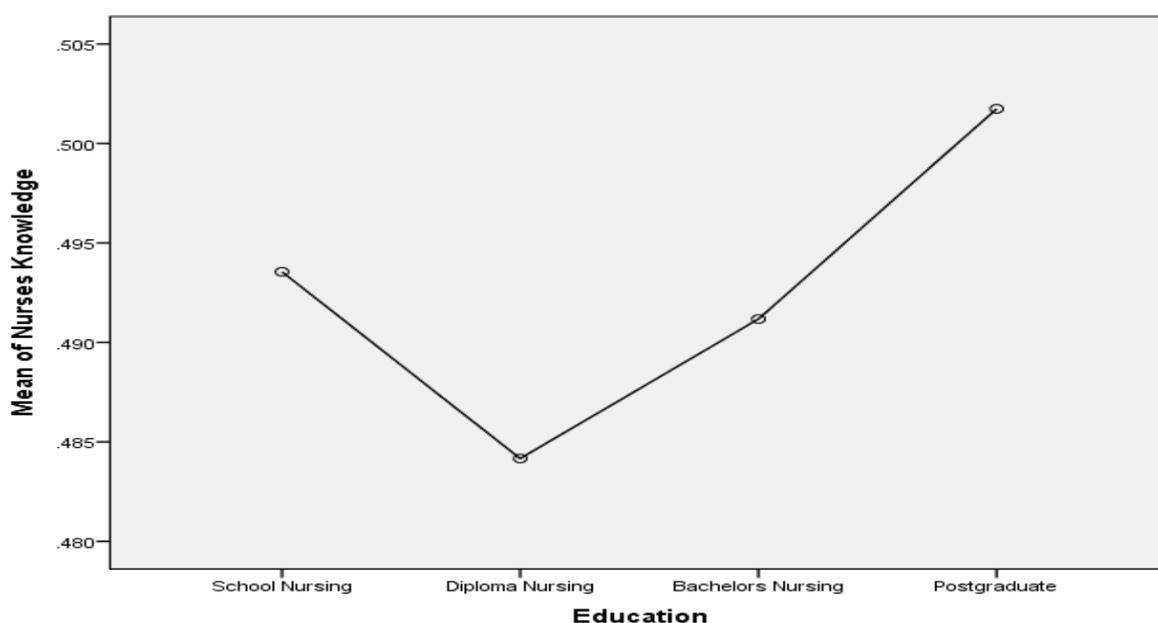
Table 4-7-9: Differences in Knowledge with regard Nurses Training (*n=300*)

Knowledge	Training	Mean	S.D	t-value	d.f	*p≤ 0.05*
	Yes	0.522	0.113	1.864	298	*.043*
	No	0.487	0.105			*Sig.*

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were significant differences in nurses knowledge with regard training sessions (*p=0.043*), nurses who are trained (*M ± SD=0.52±0.113*) were more knowledgeable than the nurses who were no trained (*M ± SD=0.48±0.105*).

4.8.Differences in Nurses Attitudes with regard Socio-demographic Characteristics

Table 4-8-1: Differences in Attitudes with regard Nurses Age (*n=300*)

Age Variables	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Attitudes	Between Groups	.072	3	.024	.062	.980
	Within Groups	114.244	296	.386		No-sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses attitudes with regard age (*p=0.980*).

Table 4-8-2: Differences in Attitudes with regard Nurses Gender (*n=300*)

Attitudes	Gender	Mean	S.D	t-value	d.f	$p \leq 0.05$
	Male	2.35	0.587	1.278	298	.202
	Female	2.25	0.631			No-sig.

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were no-significant differences in nurses attitudes with regard gender (*p=0.202*).

Table 4-8-3: Differences in Attitudes with regard Nurses Residents (*n=300*)

Attitudes	Residents	Mean	S.D	t-value	d.f	$p \leq 0.05$
	Urban	2.30	0.608	0.865	298	.388
	Rural	2.24	0.642			No-sig.

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were no-significant differences in nurses attitudes with regard residents (*p=0.388*).

Table 4-8-4: Differences in Attitudes with regard Nurses Marital Status

  (*n=300*)

Marital Status	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Attitudes	Between Groups	1.342	3	.447	1.172	.021
	Within Groups	112.974	296	.382		Sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is significant differences in nurses attitudes with regard marital status (*p=0.021*), nurses who are single were more positive attitudes than the married and widowed and divorced.
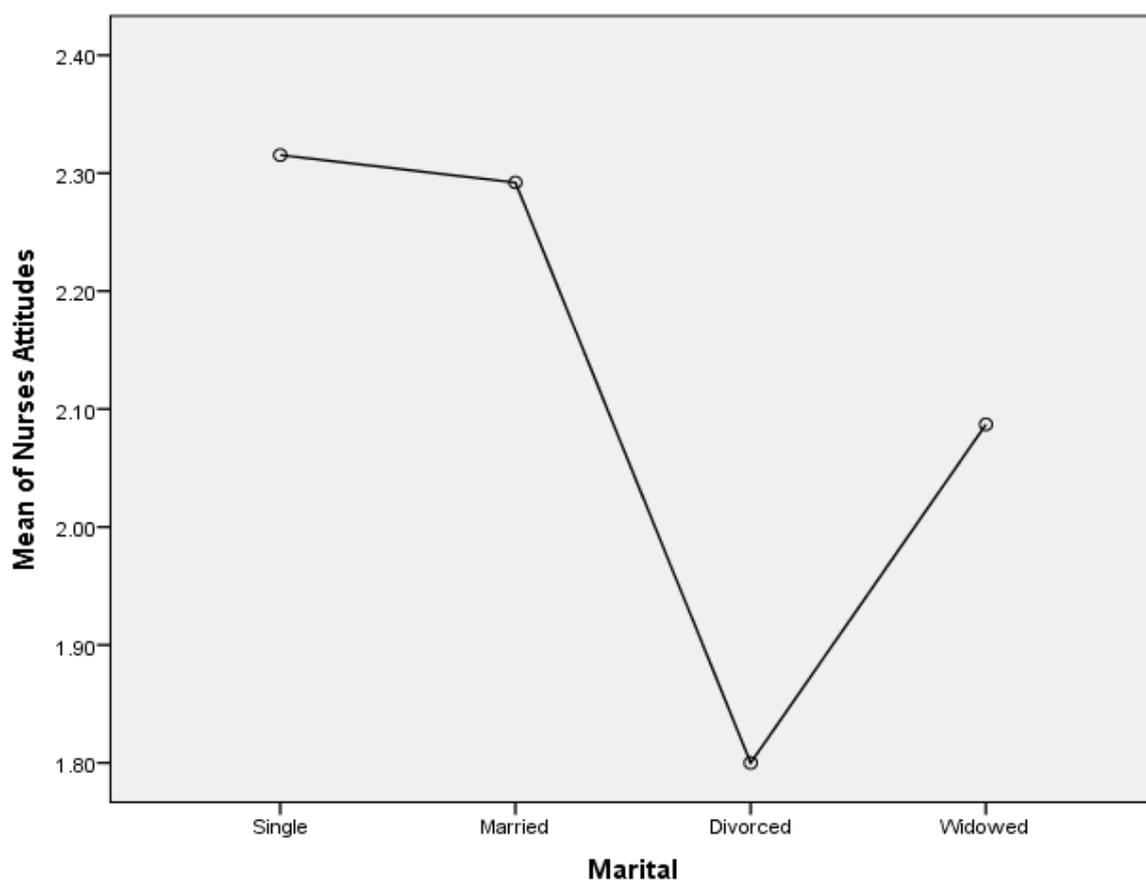
Table 4-8-5: Differences in Attitudes with regard Nurses Workplace (*n=300*)

Workplace	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Attitudes	Between Groups	9.970	6	1.662	4.666	.071
	Within Groups	104.347	293	.356		No-sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses attitudes with regard workplace (*p=0.071*).

Table 4-8-6: Differences in Attitudes with regard Nurses Years of Experience (*n=300*)

Years of experience	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Attitudes	Between Groups	3.703	2	1.851	4.971	.068
	Within Groups	110.614	297	.372		No-sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses attitudes with regard years of experience (*p=0.068*).

Table 4-8-7: Differences in Attitudes with regard Nurses Years of Experience in Pediatric Wards (*n=300*)

Experience in Pediatric	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Attitudes	Between Groups	.612	2	.306	.800	.450
	Within Groups	113.704	297	.383		No.sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses attitudes with regard years of experience in pediatric wards (*p=0.450*).

Table 4-8-8: Differences in Attitudes with regard Nurses Education Level (*n=300*)

Education Level	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Attitudes	Between Groups	.555	3	.185	.481	.046
	Within Groups	113.762	296	.384		
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is significant differences in nurses attitudes with regard education level (*p=0.046*), nurses who are bachelors degree were positive attitudes than the others degree.
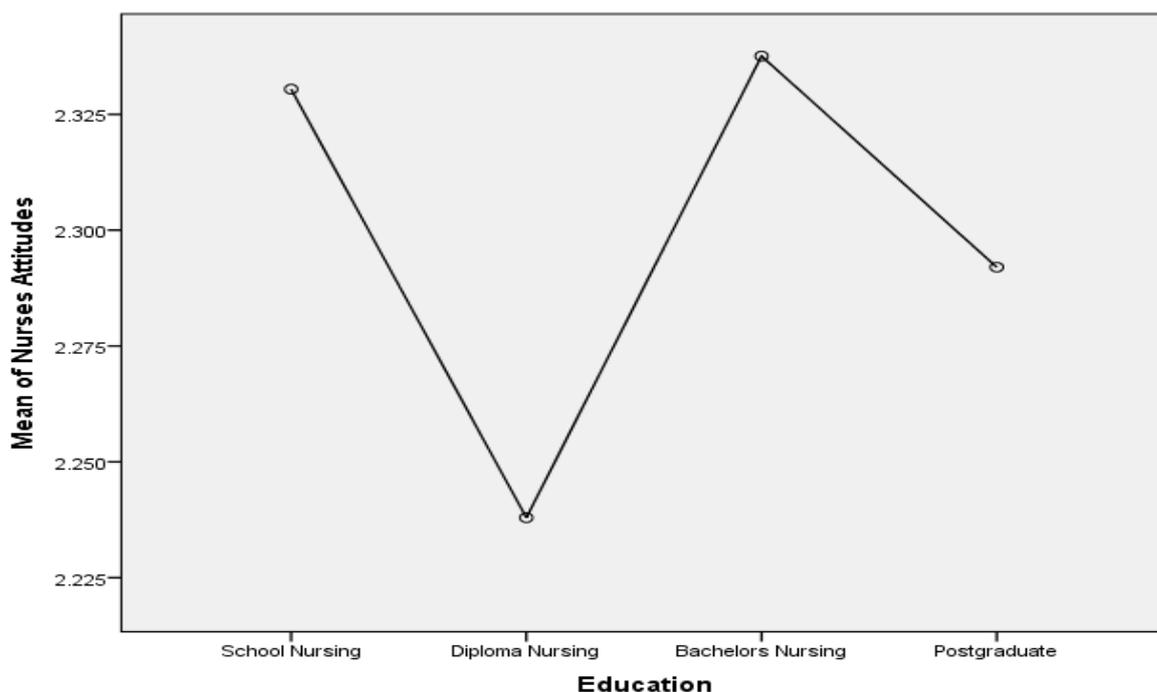
Table 4-8-9: Differences in Attitudes with regard Nurses Training (*n=300*)

Attitudes	Training	Mean	S.D	t-value	d.f	*p≤ 0.05*
	Yes	2.42	0.494	1.367	298	*.173*
	No	2.27	0.631			*No-sig.*

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were no-significant differences in nurses attitudes with regard training sessions (*p=0.173*).

4.9.Differences in Nurses Practices with regard Socio-demographic Characteristics

Table 4-9-1: Differences in Practices with regard Nurses Age (*n=300*)

Age Variables	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Practices	Between Groups	.072	3	.024	.062	.980
	Within Groups	114.244	296	.386		No-sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses practices with regard age (*p=0.980*).

Table 4-9-2: Differences in practices with regard Nurses Gender (*n=300*)

Practices	Gender	Mean	S.D	t-value	d.f	$p \leq 0.05$
	Male	1.35	0.587	1.278	298	*.020*
	Female	2.25	0.631			*Sig.*

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were significant differences in nurses practices with regard gender (*p=0.020*), female nurses (*M ± SD=2.25±0.531*) were better practices than the male nurses (*M ± SD=1.35±0.587*).

Table 4-9-3: Differences in practices with regard Nurses Residents (*n=300*)

Practices	Residents	Mean	S.D	t-value	d.f	$p \leq 0.05$
	Urban	2.30	0.608	0.865	298	*.388*
	Rural	2.24	0.642			*No-sig.*

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were no-significant differences in nurses practices with regard gender (*p=0.388*).

Table 4-9-4: Differences in Practices with regard Nurses Marital Status (*n=300*)

Marital Status	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Practices	Between Groups	1.342	3	.447	1.172	.321
	Within Groups	112.974	296	.382		No-sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses practices with regard marital status (*p=0.321*).

Table 4-9-5: Differences in Practices with regard Nurses Workplace (*n=300*)

Workplace	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Practices	Between Groups	9.970	6	1.662	4.666	.000
	Within Groups	104.347	293	.356		Sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is highly significant differences in nurses practices with regard workplace (*p=0.000*), nurses who are work in PICU were better practices than the nurses in others workplaces.

Table 4-9-6: Differences in Practices with regard Nurses Years of Experience (*n=300*)

Years of Experience	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Practices	Between Groups	3.703	2	1.851	4.971	.008
	Within Groups	110.614	297	.372		Sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is significant differences in nurses practices with regard years of experience (*p=0.008*), nurses practices significantly increased with more years of experience.

Table 4-9-7: Differences in Practices with regard Nurses Years of Experience in Paediatric Wards (*n=300*)

Experience in Paediatric	Source of variance	Sum of Squares	d.f	Mean Square	F	*p≤ 0.05*
Practices	Between Groups	.612	2	.306	.800	.450
	Within Groups	113.704	297	.383		No-sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is no-significant differences in nurses practices with regard years of experience in paediatric wards (*p=0.450*).

Table 4-9-8: Differences in Practices with regard Nurses Education Level (*n=300*)

Education	Source of variance	Sum of Squares	d.f	Mean Square	F	$p \leq 0.05$
Practices	Between Groups	.555	3	.185	.481	.036
	Within Groups	113.762	296	.384		Sig.
	Total	114.316	299			

d.f: Degree of freedom, F: F-statistic, Sig: Significance

Findings demonstrated that there is significant differences in nurses practices with regard education level (*p=0.036*), nurses practices significantly increased with bachelor's degree than the others degree.

Table 4-9-9: Differences in practices with regard Nurses Training (*n=300*)

Practices	Training	Mean	S.D	t-value	d.f	$p \leq 0.05$
	Yes	2.42	0.494	1.367	298	*.017*
	No	1.27	0.631			*Sig.*

M: Mean, SD: Standard deviation, t: t-test, d.f: Degree of freedom, Sig: Significance, p: Probability value

Findings demonstrated that there were significant differences in nurses practices with regard training sessions (*p=0.017*), nurses practices significantly increased with training sessions (*M ± SD=2.24±0.494*) compared with practices for nurses who are no trained (*M ± SD=1.27±0.631*).

4-10.Relationship between Nurses Knowledge and their Attitudes and Practices

Table4-10-1.Correlation Between Nurses Knowledge and their Attitudes (*n=300*)

Nurses Attitudes			
Nurses Knowledge	*Spearman's rho*	*0.211*	Sig.
	Sig. (2-tailed)	*0.000*	
	N	*300*	

Findings exhibit there were highly significant correlation (positive) between level of nurses knowledge and their attitudes towards pain management of hospitalized children (*r=0.211; p=0.000*).

Table4-10-2.Correlation Between Nurses Knowledge and their Practices (*n=300*)

Nurses Practices			
Nurses Knowledge	*Spearman's rho*	*0.201*	Sig.
	Sig. (2-tailed)	*0.000*	
	N	*300*	

Findings exhibit there were highly significant correlation (positive) between level of nurses knowledge and their practices concerning pain management of hospitalized children (*r=0.201; p=0.000*).

4.11. Factors Influencing Nurses Knowledge regarding Pain Management of Hospitalized Children

Table4-11-1: Simple Liner Regression between Nurses Knowledge and Organizational Factor (*n=300*)

Knowledge Vs. Organization	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	1.563	.429	.014	3.646	*.000*

Simple linear regression test indicates that organizational factors significantly effect of nurses knowledge towards pain management of hospitalized children (*p=0.000*).

Table4-11-2: Simple Liner Regression between Nurses Knowledge and Parents Factor (*n=300*)

Knowledge Vs. Parents	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	-.603-	.207	-.216-	-2.908-	*.004*

Simple linear regression test indicates that parents' factors significantly effect of nurses knowledge towards pain management of hospitalized children (*p=0.004*).

Table4-11-3: Simple Liner Regression between Nurses Knowledge and Children Factor (*n=300*)

Knowledge Vs. Children	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.003	.098	.002	.030	*.976*

Simple linear regression test exhibit that children factors no influenced nurses knowledge towards pain management of hospitalized children (*p=0.976*).

Table4-11-4:Simple Liner Regression between Nurses Knowledge and Nurses Factor (*n=300*)

Knowledge *Vs.* Nurses	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.338	.242	.096	1.397	*.016*

Simple linear regression test exhibit that nurses' factors significantly effect of nurses knowledge towards pain management of hospitalized children (*p=0.016*).

Table4-11-5:Simple Liner Regression between Nurses Knowledge and Cultural and Beliefs Factor (*n=300*)

Knowledge *Vs.* Nurses	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.029	.127	.014	.227	.821

Simple linear regression test exhibit that cultural and beliefs factors no influenced nurses knowledge towards pain management of hospitalized children (*p=0.821*).

4.12.Factors Influencing Nurses Attitudes regarding Pain Management of Hospitalized Children

Table4-12-1:Simple Liner Regression between Nurses Attitudes and Organizational Factor (*n=300*)

Attitudes *Vs.* Organization	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	-.352-	.300	-.078-	-1.174-	*.242*

Simple linear regression test indicates that organizational factors no influenced of nurses attitudes towards pain management of hospitalized children (*p=0.242*).

Table4-12-2:Simple Liner Regression between Nurses Attitudes and Parents Factor (*n=300*)

Attitudes *Vs.* Parents	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	2.256	.508	-.078-	4.445	*.000*

Simple linear regression test indicates that parents factors significantly effect of nurses attitudes towards pain management of hospitalized children (*p=0.000*).

Table4-12-3:Simple Liner Regression between Nurses Attitudes and Children Factor (*n=300*)

Attitudes *Vs.* Children	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.214	.116	.123	1.846	*.054*

Simple linear regression test exhibit that children factors significantly effect of nurses attitudes towards pain management of hospitalized children (*p=0.054*).

Table4-12-4:Simple Liner Regression between Nurses Attitudes and Nurses Factor (*n=300*)

Attitudes *Vs.* Nurses	Unstandardized Coefficients		Standardized Coefficients	T	*Sig.*
	B	Std. Error	Beta		
	.162	.286	.039	0.567	*0.571*

Simple linear regression test exhibit that nurses' factors no influenced nurses' attitudes towards pain management of hospitalized children (*p=0.571*).

Table4-12-5:Simple Liner Regression between Nurses Attitudes and Cultural and Beliefs Factor (*n=300*)

Attitudes *Vs.* Nurses	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.198	.150	.082	1.319	*.188*

Simple linear regression test exhibit that cultural and beliefs factors no influenced nurses attitudes towards pain management of hospitalized children (*p=0.188*).

4.13.Factors Influencing Nurses Practices regarding Pain Management of Hospitalized Children

Table4-13-1:Simple Liner Regression between Nurses Practices and Organizational Factor (*n=300*)

Practices Vs. Organization	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	-.352-	.300	-.078-	-3.124-	*0.041*

Simple linear regression test indicates that organizational factors influenced on nurse's practices concerning pain management of hospitalized children (*p=0.041*).

Table4-13-2: Simple Liner Regression between Nurses Practices and Parents Factor (*n=300*)

Practices Vs. Parents	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	-.274-	.245	-.983-	-.116-	.025

Simple linear regression test indicates that parents' factors significantly effect of nurse's practices concerning pain management of hospitalized children (*p=0.025*).

Table4-13-3:Simple Liner Regression between Nurses Practices and Children Factor (*n=300*)

Practices Vs. Children	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.314	.126	.143	1.746	*.018*

Simple linear regression test exhibit that children's factors significantly effect of nurse's attitudes towards pain management of hospitalized children (*p=0.018*).

Table4-13-4: Simple Liner Regression between Nurses Practices and Nurses Factor (*n=300*)

Practices Vs. Nurses	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.112	.486	.039	0.567	*0.871*

Simple linear regression test exhibit that nurses' factors no influenced nurses' practices concerning pain management of hospitalized children (*p=0.871*).

Table4-13-5:Simple Liner Regression between Nurses Practices and Cultural and Beliefs Factor (*n=300*)

Practices Vs. Nurses	Unstandardized Coefficients		Standardized Coefficients	t	*Sig.*
	B	Std. Error	Beta		
	.118	.170	.092	2.309	*0.199*

Simple linear regression test exhibit that cultural and beliefs factors no influenced nurses' practices concerning pain management of hospitalized children (*p=0.199*).
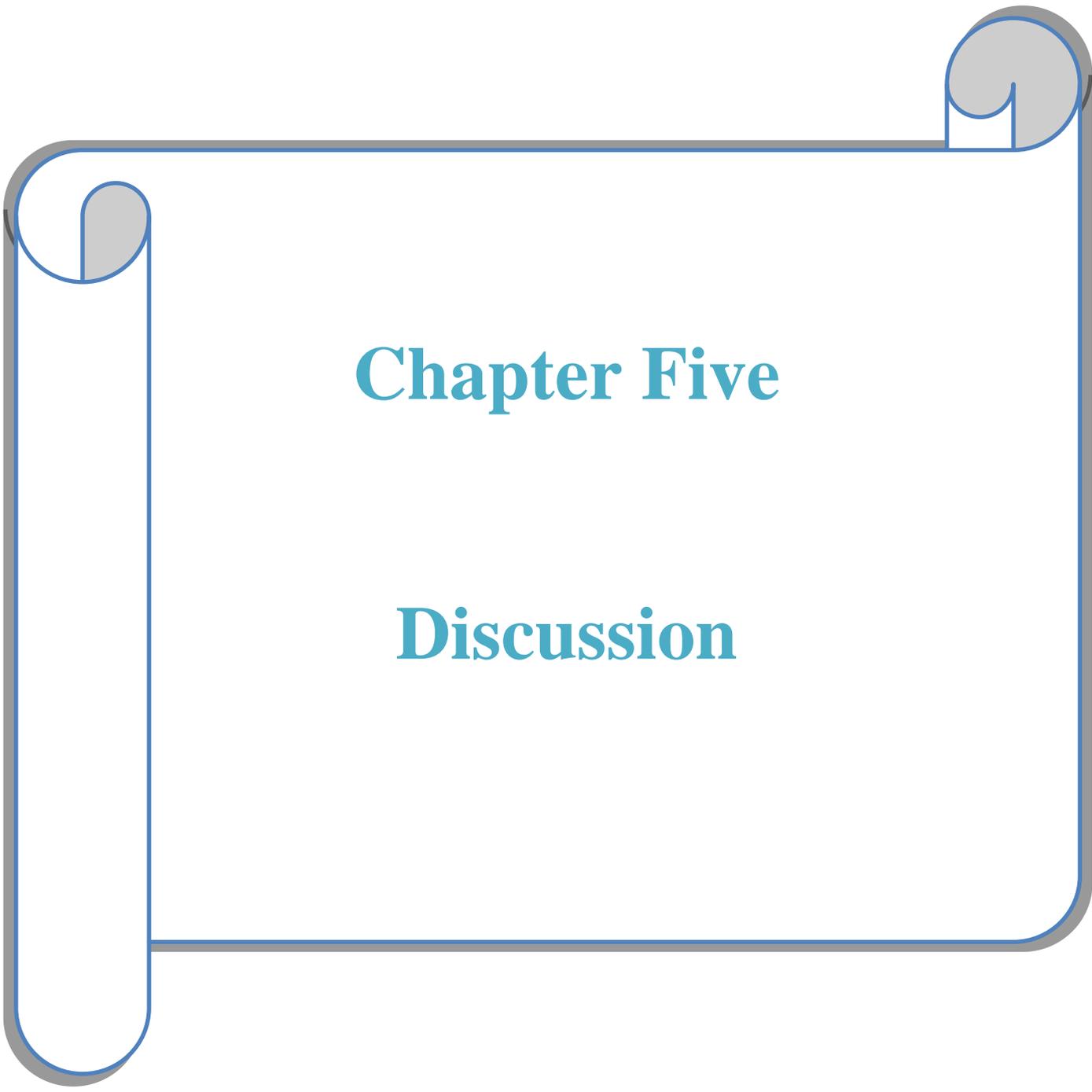
Chapter Five

Discussion

Chapter Five

Discussion of the Study Results

This chapter presents the discussion of the data gathered and analyzed in chapter four, their relevance was identified in relations with to literatures as well as the findings of certain articles concerning variables of the current study.

5.1. Discussion of demographic characteristics

5 .1. a. Nurses Socio-demographic Characteristics ; in regarding to their ages, genders, residents, and marital status.

The results of the sample ages in the present study show that more than two thirds of participants between 20-29 years old .

It coordinating with (Thapa and Gurung, 2020) who their results illustrated that more over half of the nurses in the total sample (approximately 74 nurses) were between the ages of 21 and 23 years old.

Also, this results consistent with a cross-sectional study carried out at the Laquintinie Hospital in Douala by (Houmkoua et al., 2021) to assess the knowledge of the nursing staff on postoperative pain, who reported that, the most of sample their age less than 30 years. this may due to criteria of selection of the current study's sample, and culture disparities.

Moreover, Adzitey et al. (2017) who conducted a study about "knowledge and attitude of nurses toward kangaroo mother care in the four main hospitals in Ghana" and described that, the majority of the nurses who were interviewed were between the ages of 21 and 30. This finding could be attributed to junior nurses who were on their way to becoming staff nurses in various pediatrics units, which viewed the environment as dynamic and fast-paced, necessitating active young nurses.

In terms of gender, it appears that more than two-thirds of nurses are female.

This finding congruent with study that carried out by (Kabahenda,2015) to assess factors influencing pain assessment and management among Nurses at Case Medical Centre, Kampala (Doctoral dissertation, International Health Sciences University), and found that majority of sample were female.

In addition to, Peng et al. (2021) conducted a cross-sectional study to evaluate professionals' knowledge and attitudes, as well as to analyze their pain treatment practice, and found that the majority of nurses were female.

Concerning residents, the findings of present study demonstrated that more than two thirds of the participants living in the urban residents . This result go along with a cross sectional study named Knowledge of Nurse-Midwives Concerning Hypertensive Disorders During Pregnancy in Al-Najaf AL-Ashraf City Hospitals, that carried out by (Sajjad and Khaleel, 2019) who found that vast majority of sample were living in urban area.

As a researcher point of view this may be due to the most of hospital located in center of province or district and more of personnel prefer to be residence in these areas. The researcher's opinion of the demographic information for nurses as the country's policy of direct employment after graduation and focus on stabilizing females in pediatric units from emergency to intensive care units, which results in the majority of the sample being females of young age. As for the sample's living place, the justification for the majority of the sample from the urban's population is due to the inherited culture of not exposing women to study and work outside the home, and they continue with the idea of women doing their jobs at home and just caring of their families.

5.1.b. Nurses Socio-demographic Characteristics ; in regarding to marital status, workplace, years of experience in hospital, as well as in pediatric wards.

Concerning marital status, the results of current study, indicate that the married nurses were recording about more than two thirds from total sample.

The finding of this study in the same line with study that carried out by (Yousef and Hasan, 2020) who reported that the majority of participants were married.

Regarding Workplace, the results of current study reveal that in regards with workplace, A relatively high percentage of nurses expressed work in medical wards .

This finding of study underhand congruent with study that conducted by (Muteteli,2017) who stated that majority of sample working in pediatric wards .

On contrast with (Saied and Mansour, 2021) who conducted a study in Imam Hussein Medical city in Holy Karbala to assess nurses' knowledge and attitudes about pain assessment and management, and reported that half of the participants worked in Cardiac care unit.

Years of experience in hospital, showed that less than two thirds of nurses had less than five years, with the result of those who experience in Pediatric Wards .

This result in the same line with which carried out by (Ortiz et al., 2015) who reported that years of nursing experience 1 to 5. While in contrary with (Yusuff et al., 2021) who conducted a study entitled Community Pharmacists' Knowledge and Attitudes Towards Pediatric Pain Management in Nigeria and found that, high percent of participants their experience from 1-10 years. This could be because nurses with more years of experience have more opportunities to work with a diverse range of professionals, allowing them to benefit from their coworkers' experiences. They also have a better probability of learning how to prevent pressure ulcers from their own mistakes than those with fewer years of experience because they have more long-term exposure to patient care.

In addition, (Cong et al., 2014) conducted a cross-sectional survey study of 343 neonatal nurses to explore the perceptions of pain management

among neonatal nurses in the United States and China, and their findings revealed that the majority of participants had less than five years of experience.

The researcher opinion of the demographics for nurses as for the samples were married ; which may due to the nature of Iraqi community such as culture, habits, and even religious. According to the study, this inequality in the workplace could be attributed to sample criteria and even the environment in which the study was conducted. According to the researcher idea , this disparity in years of experience may be due to a variety of factors including distinct study populations, varying geographic areas, sample selection, and cultural differences.as well, experience in pediatric wards, could be related to non-specific nursing specializations inside hospitals, such as pediatric nursing and emergency nursing. When a student graduates from the College of Nursing with a Bachelor's degree in General Nursing, he is considered a first year under probation and career development when he is sent to the hospital.

Furthermore, the researcher believes that clinical experiences allow nurses to broaden their skills and knowledge in order to provide safe infant care. Throughout a nurse's career, clinical experiences are crucial and can lead to different outcomes.

5.1.c. Demographics characteristics, regarding   level of education, training courses.

Concerning their Level of education, which indicate that the diploma nursing graduated records the highest percentage .

This finding corresponding with (Lunsford, 2015) who investigate Knowledge and attitudes regarding pediatric pain in Mongolian nurses, and demonstrated that, the higher percent of participant graduate from diploma in nursing.

In the same context, (Majeed et al., 2020) who conducted a study about Evaluation of Nurses' Knowledge and Attitudes toward Pain Management

at Baghdad Teaching Hospitals .and stated that, a high percentage of them were have institute graduate.

Regarding to their Training, the result of current study indicates that the majority of nurses no attending training sessions. This finding matching with study that carried out by (Kahsay and Pitkäjärvi, 2019) who reported that the majority of participants were not had training course. While, this result contradiction (Salim et al., 2020) who conducted a study in the United Arab Emirates on the impact of a pain management program on nurses' knowledge and attitude toward pain: According to the experimental-four Solomon group design, the majority of participants had previously received pain management training. .

According to the researcher, this is because the Ministry of Health has tried to make an effort to increase the number of trained nurses, and it is hospital setting at least holding diploma level like higher health Institute in Babylon province, as well as, this may be due to more nurses enrolling in evening study of private nursing college. This could be owing to a scarcity of continuing medical education classes on issues like pain management techniques and updates. As well, in terms of training courses, the researcher believes that they are essential for improving and updating nurses' knowledge and practices. Recurrent training courses for nurses should be conducted in or out of the hospital, depending on their needs. According to the researcher, training courses are important in improving and updating nurses' knowledge and performance. Recurrent training courses for nurses should be provided in or out of the hospital, depending on their needs.

5.2. Nurses Knowledge related to Pain Management of Hospitalized Children

This table showed that nurses' knowledge of pain management for children in the hospital was at a poor level on all of the scale's questions.

This finding is identical with the findings of a study conducted by (Adams et al., 2020), which found that the majority of nurses had only moderate knowledge of pain management.

According to the researcher, this outcome could be attributable to the fact that undergraduate nursing programs do not adequately prepare nurses to systematically assess pain, make solid nursing care decisions, and utilize pain medications appropriately and effectively. Furthermore, this could be due to the hospital's lack of workshops or continuing education to initialize the nurses being expertise in managing pain, on the other hand, can be explained by nurses' reliance on the patients' looks or behaviors in measuring pain rather than what the children tell.

5.3. Overall Assessment of Knowledge related to Pain Management of Hospitalized Children:

The findings indicate that the more than half of nurses were fail knowledge related pain management of hospitalized children, which harmonizing with study that carried out by (Alotaibi, 2019) to investigate the knowledge and attitudes of Saudi and non-Saudi nurses in relation to the assessment and management of infants' and children's pain, who said that there was a lack of knowledge about how to manage children's pain in general .

According to the researcher, this could be because pain topic was not covered in their fundamental nursing education. This implies that nurses' understanding of pain assessment and management in children is very lacking. as well as pain management information found in areas like pain evaluation and pharmacological and non-pharmacological pain management. These areas of nursing knowledge necessitate a high level of theoretical understanding in postoperative pain, pain evaluation, pain medication, and non-pharmacological pain management strategies.

Also, this could be due to a lack of ongoing clinical supervision and evaluation, as well as a lack of regular education courses and research-based

evidence. It could also be due to a lack of clarity in hospital policy or standard guidelines for pain assessment scales and pain management protocols in pediatric wards. Work overload, a lack of nurse motivation to improve their knowledge, and a desire to update their knowledge are all possible factors. Furthermore, there are other rationales for their lack of understanding of pain in terms of assessment and management. is that the sample members lacked the priorities that did not exist and did not focus on those topics in the primary study curriculum at all levels and persist as lack of in-service training and education .

Similarity, with (Kyei-Dompim and Bam, 2021) who carried out a study on nurses' knowledge, attitudes, and practices in pediatric units on pain assessment and management in selected facilities In kumasi and pramso overall, the quantitative findings have revealed an extensive deficit in knowledge about pediatric pain management Their low level of knowledge may be attributed to the lack of in-service training and education.

5.4.Nurses Attitudes towards to Pain Management of Hospitalized Children:

This results illustrated that the nurses attitudes towards pain management of hospitalized children uneven between High to Low attitudes. The finding of study underhand corresponding with study that carried out by (Hossain, 2010) who discovered that nurses' attitudes toward pain management were on the moderate side.

5.5: Overall Assessment of attitudes towards Pain management of hospitalized children:

Overall, according to the findings, three-quarters of nurses have a neutral attitude toward the pain management of children in hospitals.

The result of present study at the same line with study that conducted by (Elias et al., 2019) to assess staff nurses' knowledge and attitudes about children's pain treatment, as well as perceived barriers to children's pain

management , the majority of the subjects had a neutral attitude toward children's pain management, according to their findings.

According to the investigator, variations in information sources, individual judgments based on beliefs, and methodological differences could all be factors. Or this variance could be due to differences in the study setting and assessment tool.

5.6.Nurses Practices towards to Pain Management of Hospitalized Children:

In the light of statistical analysis of mean, which illustrated that the nurses practice concerning pain management of hospitalized children uneven between never to occasionally.

The current study's findings, which were based on a descriptive cross-sectional study design with a convenience sample of 87 nurses currently working in pediatric departments and conducted by (Abu Amra, 2018), revealed that the majority of participants occasionally responded regarding pain management practices.

5.7.Overall assessment nurses practice concerning pain management of Hospitalized Children:

The current study discovered that more than half of nurses had insufficient practice, which was similar to a study of 200 nurses by (Kumara and Hindagoda, 2020) with at least two years of experience working in surgical units in Kandy, Sri Lanka, which found that nurses' practice was insufficient.

Also, parallel with A quantitative approach, descriptive cross-sectional study that conducted by (Benimana, 2017) in Rwanda , who investigated nurses' knowledge, attitudes, practices, and challenges in pain management among surgical patients in one referral hospital, and found that the majority of participants/nurses have poor and bad practices in pain management.

According to the researcher, this could be because there were no known training hours designated for pediatric pain management as a topic in the

basic nursing curriculum, and nurses were underprepared. Nurses should receive necessary education and training in order to increase their knowledge, which may be used in their pain management practice or may be caused to nurse job overload. Other factors could include a nurse's lack of knowledge.

In addition to, this result could also be explained by the fact that the number of nurses compared to the number of patients is quite low. Furthermore, the low level of practices reflects the state of pediatric ward nurse training, a lack of pain management training for nurses (both pharmacological and non-pharmacological), physician and family involvement by nurses in pain management, and a lack of clinical expertise.

5.8. Factor Affecting Pain Management

5.8.1. Orgnizational factors

Findings showed according to mean that are pain management standards or protocols in hospital and designated area for charting pain were the most common factors influenced pain management related to organization, besides lack of standard pain assessment tool and protocols for pain management were the most effects of pain management .

The results of the current study are similar to those of a qualitative study using a content analysis method conducted by (Mehrnoush et al., 2018) to investigate factors influencing neonatal pain management from the perspectives of nurses and physicians in a neonatal intensive care unit (NICU). The findings reported that the majority of participants do not use pain protocols, and there are specific tools to assess pain in neonates.

Moreover, (Azzam et al., 2021) who conducted a cross-sectional design on , 250 nurses in private, and public hospitals and primary health care centers in Palestinian,   to assess practices, knowledge, and barriers correlated with injection-induced pain control among the child and patients. and clarified that, Inadequate staff, restricted amount of several types of topical analgesia were the most numerous mentioned barriers for pain management.

Additionally, in another institutional based cross-sectional study by Wari et al., 2021) that conducted on 119 nursing staff working in neonatal intensive care unit (NICU) in Ethiopia. The findings stated that, availability of protocols and guidelines for neonatal pain management in the unit , and analgesics are not present in the unit the majority of participants reported no.

5.8.2. Parents factors

Findings presented according to mean that Parents' reluctance to have children receive medications affects ability to manage pain of children, were the most common factors influenced pain management related to parents.

This findings go along with (Czarnecki et al., 2011), who conducted a cross-sectional design, and concluded that most significant barriers to pain management as indicated by the highest means was parents' reluctance to have children receive medication.

5.8.3. Children factors

Findings showed according to mean that Patient inability to communicate affects ability to manage pain of children were the most common factors influenced pain management, followed by those who are reluctance to report pain affects ability to manage pain and reluctance to take pain medications affects ability to manage pain.

The results in coordinating with study entitled Towards Effective Pain Management: Breaking the Barriers, that carried out by (Al-Mahrezi,2017). The findings reported that the Reluctance to take analgesics consider most factors that related to patient. in another study that conducted by (McQuay, 2009) who indicated that patient in ability to communicate as factor related to patient and family factor. As well as, a descriptive qualitative study that conducted by (Kusi Amponsah et al., 2020), and concluded that ineffective communication with children was common factor for pain assessment and management. furthermore (Wuni et al., 2020) who carried out a descriptive cross-sectional facility-based study on 180 nurses , their findings showed that

child's uncooperativeness taking medication was the most factor that effect on pediatric pain management.

In addition to, (He et al., 2010) direct a quasi-experimental one-group pre- and post-test design on 108 nurses to identify the impact of an educational intervention in pain management on nurses' self-reported use of non-pharmacological methods for children's postoperative pain relief and their perceptions of barriers that limited their use of these methods, and founded that, the child's inability to cooperate was the most commonly reported barriers at pre- and posttest of nurses about post-operative pain management.

As well as, a descriptive research design that conducted by (Olufunke et al., 2018) in Nigeria who studied factors associated with utilization of pain assessment tools in pain management among nurses in selected hospitals in Ekiti State and explained that, patient instability, inability to communicate were factors effect on pain management.

5.8-4. Nurses factors

Findings showed according to mean that lack of nursing curriculum in their studied, followed by lack of undertaken any further continue education (training), followed by lack familiarity with analgesics affects ability to manage the pain of children, The most common factor that influenced pain management was a lack of training, followed by a lack of guidelines for managing children's pain, and finally, a low priority of pain management by the unit team.

This finding consistent with Miftah et al., (2017) who conducted a cross-sectional study on 261 nurses at Mekelle City's public hospitals , and their findings indicated that lack of guidelines, and inadequate knowledge of the nurses. These all factors were pertinent for the management of pain in children.

In another an exploratory, descriptive, qualitative study which was conducted by Mediani et al., (2017) who verified that the participants had inadequate training and preparation to effectively manage their patients' pain,

and this was the main reason for their being unable to provide effective pain care. This result in the same line with present study.

In addition to, Wurjine and Nigussie(2018) who conducted a study in Ethiopia to assess Knowledge, Attitudes and Practices of Nurses Regarding Post-operative Pain Management discovered that, majority of the participants reported the following as barriers to pain assessment; nursing workload, lack of education on assessment tools, and lack of familiarity with tools

as well as, Alquisada (2013) who carried out descriptive relational study was conducted to determine the level of knowledge, attitude and practices on post-operative pain management and described that, the factors perceived by nurses and influence on optimal pain management were nurses' busy and heavy workload.

5.8.5.Cultural factors

The findings revealed that the most common factors influencing pain management were parent's belief that pain medications should be given as little as possible affects nurses' ability to manage pain of children.

The current study's findings are consistent with those of a cross-sectional descriptive study was conducted on 124 parents of hospitalized children (aged 4–9 years) undergoing tonsillectomy in Korea, to explore parental attitudes toward children's pain and analgesic drugs and parental self-efficacy and use of pain relief strategies in children's postoperative pain management in Korea, and to identify the relationships among these variables. Their result indicated that half of parents believed that children should be given pain medication as little as possible because of side effects(Yu and Kim, 2021).

While, in another study that carried out by (Kankkunen et al., 2009) to describe the cultural factors that are related to children's pain based on research findings reported in scientific articles 1995-2009. These factors are important to identify to conduct culturally sensitive care for children suffering

from pain, who stated that Cultural factors   have a great influence on children's pain.

5.9. Differences in Nurses Knowledge with regard Socio-demographic Characteristics

5.9.1. Differences in Knowledge with different nurses age groups (*n=300*)

This table indicate that there are no-significant differences in nurses' knowledge with regard age (*p=0.260*).

An evidenced study that supported this findings that conducted by Kahsay and Pitkäjärvi(2019) to assess the emergency nurses´ knowledge, attitude and perceived barriers regarding pain management. and stated that, no significant differences in knowledge were found among the nurses with age at the p-value was greater than 0.05.

In the same way, (Panlican et al., 2020) who carried out a study about A survey on the knowledge and attitude on pain management among nurses employed in the government hospitals, and stated that, there is no statistically significant relationship between the level of knowledge on pain assessment of the respondents and their age at p-value 0.40.

Based on researcher's point of view, there was cooperative between staff , which allow to older existing staff to exchange knowledge with new employed nurses As a result, age differences have no effect on nurses' knowledge.

5.9.2. Differences in Knowledge with regard Nurses Genders (*n=300*)

This table revealed that there were significant gender differences in nurses' knowledge (p=0.049), with male nurses being more knowledgeable than female nurses.

This study's findings were comparable to those of (Shdaifat et al., 2020), who used a cross-sectional design to examine nursing students' knowledge and attitudes about pain management using the Knowledge and Attitude Survey Regarding Pain, which included a total of 193 nursing students

from a nursing school and discovered that gender was significantly associated with pain management knowledge. Because female student nurses are more empathetic than their male counterparts, it's possible that they'll pay more attention to pain management information as a result.

In the same context, Al-Quliti and Alamri(2015) conducted an exploratory cross-sectional study on 105 participants to present data on knowledge and attitudes toward pain assessment among health care providers in Saudi Arabia, and clarified that Male health care providers were more knowledgeable than female health care providers regarding pain .

 5.9.3. Differences in Knowledge with regard Nurses Residents (*n=300*)

This table indicate that there were no-significant differences in nurses knowledge with regard respondents residents According to this table, there were no significant differences in nurses' knowledge of the residents who answered the survey questions at (p value=0.962).

This result in line with (Hasan et al., 2020) who studied assessment of nursing staff knowledge toward preventing sepsis in neonatal care units in Hilla hospitals, the results of this study found no correlation between nursing staff knowledge and their residency.

5.9.4: Differences in Knowledge with regard Nurses Marital Status (n=300)

There were no significant differences in nurses' knowledge about marital status (p=0.107), according to the findings.

This result seem to be close to findings of the study conducted by Mohammad and Khaleel (2019) in Al-Najaf city to assess of Nurses - Midwives' Knowledge Regarding Nursing Care of Post-partum Hemorrhage they verified that their outcomes show that no significant association had been found between overall knowledge scores and marital status, P. value > 0.05). it may be due to the majority of the respondents in this study were married

In contrast, Attia and Abdella (2020) investigated nurses' knowledge and barriers about non-pharmacological pain management for high-risk

newborns using a cross-sectional descriptive study with a sample of all nurses (40) in Port Said hospitals. The researchers discovered that there was a statistically significant link between staff nurses' expertise and their marital status in the current study. This could be because married nurses had more experience as mothers.

5.9. 5. Differences in Knowledge with regard Nurses Workplace (n=300)

The findings revealed that there are significant variations in nurses' workplace knowledge (p=0.107), with nurses working in NICUs being more knowledgeable than those working in other settings. This is because nurses working in the pediatric ward had greater theoretical and practical experience with pediatric pain treatment than nurses working in the outpatient unit.

The current findings are consistent with those of Alotaibi et al (2019), who conducted a descriptive cross-sectional survey to examine the knowledge and attitudes of nurses working with infants and children in the Kingdom of Saudi Arabia regarding pain, and their findings indicated that there was a statistically significant difference between nurses who worked in the emergency department and those who worked in other clinical areas .This may be due to a variety of variables, including the fast-paced emergency department environment's chances for self-learning and information gain.

Correspondingly, Hua et al (2019) who conducted surveyed 2,882 pediatric nurse practitioners in China to assess Pediatric Nurse Practitioners' Knowledge and Attitudes Regarding Pain Management , and illustrated that, the main factors influencing the knowledge score related to working department

On the contrary, Liyew et al(2020) conducted an institution-based cross-sectional study on 422 nurses in Ethiopia to examine knowledge and attitudes regarding pain management. Their findings revealed that, at a p-value of 0.364, there was no significant difference between nurses' knowledge of pain management and unit/ward. This difference could be explained by the study environment, sample size, and different data collection technologies used.

5.9. 6. Differences in Knowledge with regard Nurses Years of Experience (n=300):

There are no significant differences in nursing knowledge based on years of experience (p=0.122), according to the findings.

This research supports the conclusions of (Benimana, 2017) who did a study on (knowledge, attitudes, behaviors, and problems). Nurses' experiences in pain management among surgical patients in one referral hospital in Rwanda) and found that there was no statistically significant relationship between nurses' knowledge and nursing experiences (p-value=0.825).

While, in another study that supported this finding which conducted by (Manwere et al., 2015) to determine the knowledge and attitudes of registered nurses towards pain management of adult medical patients at a provincial hospital in Zimbabwe. who their results indicated that, Knowledge of pain management was associated with years of experience in the nursing profession (p=.003; p ≤ .005)

5.9.7. Differences in Knowledge with regard Nurses Years of Experience in Pediatric Wards (n=300)

The findings revealed that nurses' expertise differed significantly depending on their years of experience on pediatric wards (p=0.000) , nurses who had 10 years of experience and more were more knowledgeable than those less experience.

This result in similarity with a cross-sectional, correlational design on 25 pediatric nurses that conducted by Stanley and Pollard (2013) who reported that there was a statistically significant relationship between the level of knowledge and the years of pediatric experience (r = 0.404, p = 0.05) . The difference could also be due to the presence of pediatric nurses working in the pediatric wards where a transfer of knowledge could take place among the nurses.

While, incongruent with (Mohammed and Aburaghif, 2018) in their experimental study design about Effectiveness of Teaching Program on Nurses' Knowledge Concerning the Side Effects of Chemotherapy among Children with Leukemia at Oncology Wards in Baghdad City, and demonstrated that there was there is no significant association between nurse's years of experience in oncology units and their knowledge regarding the side effects of chemotherapy among children with leukemia.

The positive association found in this study could be attributed to the fact that the number of years of practice increases as the number of years of practice grows. Nurses are more likely to be exposed to pain management on a frequent basis than other healthcare professionals; with more experience, they may have a better chance of gaining access to up-to-date pain management material, which they can learn gradually via their daily observations, practices, and personnel. So, the researcher believes that nurses may receive appropriate education and training that was not offered to their colleagues with 5 or more years of experience.

Table 5.9.8. Differences in Knowledge with regard Nurses Education Level (n=300):

The findings revealed that nurses' knowledge differed significantly depending on their level of education (p=0.000), with postgraduate nurses being more knowledgeable than those who undergraduate.

This findings in agreement with a cross-sectional study that conducted by Kahsay and Pitkäjärvi (2019) to determine the nurses´ knowledge level, attitude and the perceived barriers related to pain management. and stated that, a significant difference in knowledge score among nurses with various educational levels; p < 0.001.

In the same attitude, (Omran et al., 2014) conducted a study around (Knowledge and Attitudes about Pain Management: A Comparison of Oncology and Non-Oncology Jordanian Nurses) in Jordan on 200 nurses and described

that, Nurses' pain knowledge significantly differed according to their education level at p-value = 0.020).

In contrast, (Nimer and Ghrayeb, 2017) conducted a study to assess knowledge and attitudes regarding pain management among nurses working in Palestinian hospitals in the south, and found no significant difference in the mean knowledge score in relation to education level (p = 0.934). This disparity could be attributable to a lack of preparation in nursing school and continued education.

5.9.9 Differences in Knowledge with regard Nurses Training (n=300)

The results revealed that nurses' knowledge of training sessions differed significantly (p=0.043). nurses who are trained (M ± SD=0.52±0.113) were more knowledgeable than the nurses who were no trained (M ± SD=0.48±0.105).

The findings of this study are consistent with those of (Mathew et al., 2011), who conducted a study on (Knowledge, attitude, and practice of pediatric critical care nurses towards pain: Survey in a developing country setting), and found that pediatric nursing training was a significant contributing factor in the domain of knowledge (P=0.03).

In others previous related studies Ahjil and Maala (2012) conducted a study to evaluate nurses' Practices toward pain management of leukemic child in oncology wards who were receiving chemotherapy, in Baghdad on 40 nurses , who explained that there is significant association between training sessions and nurses' knowledge scores at P≤0.05

While dos Santos Ferreira et al (2019), conducted a cross-sectional study to examine oncology nurses' knowledge of pain management and the factors that influence it, they discovered no significant differences in pain knowledge and professional training. The low prevalence of pain management knowledge in newly trained nurses in the process of specialization in oncology is thought to be due to the subject's limited coverage in undergraduate courses,

and when it does occur, it is done without regard for interconnecting this content with previous knowledge, favoring the low prevalence of pain management knowledge in newly trained nurses in the process of specialization in oncology.

5.10. in Nurses Attitudes with regard Socio-demographic Characteristics

5.10.1. Differences in Attitudes with regard Nurses Age (n=300):

Findings show that there are no significant differences in the attitudes of nurses based on their age (p=0.980).

The findings of current study compatible with Wong (2012), who carried out a study on nurses' knowledge and attitudes on pain treatment, and reported that there was no statistically significant difference in attitudes scores for the four age groups at the P 0.05 level.

Correspondingly, with (Agyemang et al., 2020) in their study about Nursing and Midwifery Students' Knowledge and Attitudes Regarding Children's Pain on 554 nursing and midwifery students in Ghana, who clarified that, there was no statistically significant differences in the mean attitudes scores on the basis of participants' age group (p> .05). These findings could indicate that experiential knowledge, traditions, intuition, and tacit knowledge had no effect on nurses' attitudes toward pain across the age categories.

5.10.2. Significant Differences in Attitudes with regard Nurses Genders (n=300)

The researcher found that nurses' attitudes toward gender did not differ significantly (p=0.202).

This finding is reliable with that of (Reyala, 2020), who looked at Nursing Students' Knowledge and Attitude toward Pain Management in Gaza Strip, Palestine, and found that there was no statistically significant difference in nursing students' knowledge and attitude scores based on gender (p > 0.05).

On the dissimilar, this finding versus (Dessie et al., 2019) who conducted a cross-Sectional multicenter study entitled Knowledge and Attitudes of Ethiopian Nursing Staff Regarding Post-Operative Pain Management" and

explained that, nurses' attitude was significantly associated with sex. this may be due to female in general more empathetic than their male colleagues. This suggests that women may give greater attention to pain management, which needs to be investigated further.

5.10.3. Differences in Attitudes with regard Nurses Residents (n=300)

There was no significant difference in nurses' attitudes toward residents (p=0.388), according to the findings.

These findings matched with (Hussein and Wahab Khalil, 2020) who conducted a study about Assessment of Primary Schools Teachers' Toward Communicable Diseases Prevention and Control at Primary Schools and stated that, there was insignificantly association between teacher's attitudes toward prevention and control of communicable diseases and residence at p-value >0.05.

5.10.4. Differences in Attitudes with regard Nurses Marital Status (n=300)

The results revealed that nurses' attitudes toward their marital status differ significantly (p=0.980). nurses who are single were more positive attitudes than the married and widowed and divorced.

This study's findings are similar to those of a descriptive cross-sectional study conducted by (Shoghi et al., 2020), which discovered that nurses' attitudes were substantially related to their marital status.

The background and culture of the couple's family have a significant impact on post-marital persons' attitudes toward parenting and related difficulties. So, compared to their pre-marriage state, people may take this issue more seriously after marriage, and this may change their attitude, which is similar with (Alshon and Almiahi, 2020) who found a significant relationship between attitudes and marital status.

5.10.5. Significant Differences in Attitudes with regard Nurses Workplace (n=300)

The results showed that there were no significant differences in nurses' attitudes toward their workplace (p=0.071).

The current study's findings are in line with those of (Chia et al., 2018), who found that the mean total score of nurses' attitudes did not alter significantly depending on the discipline in which they work.

While, in congruent with (Ou et al., 2021) who carried out a study about Factors Related to Nurses' Knowledge and Attitudes Toward Pain in Hospitals in Low-Income Areas. Pain Management Nursing, and found that there was a link between nurses' attitudes and their department of work. This may be due to nurses from the oncology department often had to care for cancer pain patients, which provided them many opportunities to study and practice pain management methods and strategy

5.10.6. Differences in Attitudes with regard Nurses Years of Experience (n=300)

The results showed that there are no significant differences in nurses' attitudes regarding years of experience (p=0.068).

This finding resembled that of (Ndagijimimana, 2017), who did a study in Rwanda and found no link between nursing experience, expertise, and attitude toward pediatric pain care (P values greater than 0.05).

5.10.7. Differences in Attitudes with regard Nurses Years of Experience in Pediatric Wards (n=300)

The results showed that nurses' attitudes toward years of experience working in pediatric wards were not significantly different (p=0.450).

A study by Kahsay and Pitkäjärvi (2019) titled Emergency nurses' knowledge, attitude, and perceived barriers related pain management in resource-limited settings: a cross-sectional study found no significant association between nurses' attitudes and their experience in emergency departments, and this findings in the same line with results of present study.

5.10.8. Differences in Attitudes with regard Nurses Education Level (n=300)

The findings demonstrated that there is significant differences in nurses attitudes with regard education level (p=0.046), nurses who are bachelors degree were positive attitudes than the others degree and being .

parallel with (Abdulwahab et al., 2020) who carried out a study around Factors influencing nurses' knowledge and attitudes toward patients in chronic pain with opioid use disorder: A literature review, and found that, several factors that influence nurses' knowledge and attitudes. These factors like nurses' education.

Similarly, (Mohammed et al., 2021) verified that there is a significant relationship between attitude of nurses regarding working in emergency department and level of education at p-value=0. 003 in their cross sectional study to determine the attitudes of nurses regarding work in Emergency departments at Babylon teaching hospitals.

In contrast to Nimer and Ghrayeb (2017) in Palestine, who used a quantitative cross-sectional study methodology to gather a representative sample of 380 staff nurses working in various wards, their findings showed that education had no effect on attitudes about pain management. This might be due to inadequate preparation in the nursing curriculum and in continuing education

5.10.9. Significant Differences in Attitudes with regard Nurses Training (n=300)

There were no significant difference in nurses' attitudes toward training sessions, according to the findings at p-value= (0.173)

which come in agreement with (Al-Attar and Sameen, 2015) in their study that aimed to assess Nurse's Knowledge and Attitudes toward Cancer Pain Management at Baghdad Hospitals., and their findings described that, there was no significant between attitude score and demographic characteristics as number of sessions in cancer pain management in Iraq) at (P value >0.05).

While, opposing with (Hua et al., 2019) who conducted a study entitled Pediatric Nurse Practitioners' Knowledge and Attitudes Regarding Pain

Management Study in Central China, on 2,882 pediatric nurse practitioners and reported that, receiving training pain factors influencing on attitudes nurse about pain management. This implies that nurses who have participated in more pain education short courses or training are more knowledgeable than those who have not or have only attended a small number of courses or training. This only goes to show that mastery is achieved through repetition and frequent exposure, which is the key to ensuring that nurses have adequate knowledge , attitudes of pain management.

5.11. Differences in nursing practices based on socio-demographic characteristics

5.11.1. Differences in Practices Regarding the Age of Nurses (n=300)

Findings demonstrated that There are no statistically significant differences in nurse practices based on age (p=0.980).

This result is similar to that of (Abdul Hassan and Ali, 2020), who conducted a study to assess the practices of health care providers regarding hand hygiene, and clarified that there are no significant relationships between the practices of health care providers with respect to infection control measures and their age .

In contrast, (Sisay, 2017) conducted a cross-sectional study to analyze nurses' knowledge, attitude, and behavior regarding non-pharmacological pain management and associated factors in Ethiopia, among 270 nurses , who founded that there was statically significant between nurses practices about non-pharmacological pain management and their age at p value <0.05.this difference may be due to sample size, culture, and older nurses have better practices may be due to older nurses have more life experiences and better education, as well, the old nurses were slightly better practiced than younger.

5.11.2. Significant Differences in practices with regard Nurses Gender (n=300)

Findings demonstrated that Nurses' practices differed significantly based on gender. (p=0.020), female nurses (M ± SD=2.25±0.531) were better practices than the male nurses (M ± SD=1.35±0.587).

This result compatible with (Albahri et al., 2021) who conducted a study to evaluate the knowledge, attitude, and practices of health care workers toward COVID-19, in Dubai , and demonstrated that, there was significant association between health care workers with their gender.

A cross-sectional study on 172 nurses was undertaken by (Wake et al., 2021) to measure Knowledge, attitude, practice, and associated factors towards patient safety among nurses in Ethiopia, and their findings established that there was a relationship between nurses and their gender. It could also be related to biological differences, with males having a greater ability to cope with increased workload and males having a lower rate of burnout, and females having less concentrate on their work since their attention is drawn to family issues at home.

5.11.3. Differences in practices with regard Nurses Residents (n=300)

Findings demonstrated that Nurses' practices with relation to residents showed no significant difference at (p=0.388).

This finding is consistent with the findings of (Bofarraj, 2011), who conducted a study to identify maternal knowledge, attitude, and practice (KAP) about immunization and to determine maternal characteristics in Libya, and found a non-significant association between maternal practices regarding immunization of infants and preschool children and residence at p-value >0.05.

While, in contrast with A cross-sectional, descriptive study was conducted by (Kamal et al.,2020), who reported that respondents staying in the civil area scored higher for practice. This might be due to the strong emphasis by social media, newspapers, television channels, and government health agencies to educate the populace mainly on attaining good practices, or the possible explanation for this disagreement could be due to difference in sample size.

5.11.4 Differences in Practices with regard Nurses Marital Status (n=300)

Findings demonstrated that There is no statistically significant difference in nurse practices based on marital status. (p=0.321).

This finding harmonizing with (Abdulhassan and Ali, 2020) who conducted a study entitled (Infection Control Measures Practices for Health Care Providers in Emergency Units at Al-Hilla Teaching Hospitals), and reported that no significant relationships between the health care providers practices with respect to infection control measures and their marital status in P ≤ 0.05.

In conflict with a descriptive study that conduct by (Homadi and Ali, 2018) to assess the nurse-midwives practices regarding prolonging labor in Babylon Governorate hospitals , who their results stated that, married nurse-midwives practices regarding prolonged Labor had presented more mean score practice than the single. the marital status provide evidence for its relationship with these nurse-midwives practices. Such finding can be Justified in a sense that these nurses were considered responsible figures for their significant others who they may have to concerned a bout their life and survival. This fact had emerged due to the nature to their life as being married and having responsibility to take care of their dependent children. There fore they had to respect their work for the benefit of saving the future of the family.

5.11.5. Differences in Practices with regard Nurses Workplace (n=300)

Findings demonstrated that there are highly significant differences in nurses practices with regard workplace (p=0.000), nurses who are work in PICU were better practices than the nurses in others workplaces.

This finding in similarity with (Taddess, 2020) in their study about assessment of knowledge, attitude and practice towards Pediatric pain management among nurses working in pediatrics unit at Tikur Anbessa specialized hospital, Addis Ababa, Ethiopia , who showed that the nurses who

worked in inpatient unit having good practice towards pediatric pain management at p-value (0.0001).

5.11.6. Differences in Practices with regard Nurses Years of Experience (n=300)

Findings demonstrated that there are significant differences in nurses practices based on years of experience (p=0.008), nurses practices significantly increased with more years of experience.

This result consistent with a descriptive cross-sectional study that conducted by (Umuhoza et al., 2019) to Perceived knowledge and practices of nurses regarding immediate postoperative pain management in surgical wards in Rwanda., their findings indicated that, the factors associated with perceived practices of nurses with regard to immediate post-operative pain management were working experience (p -value= 0.031)

5.11.7. Differences in Practices with regard Nurses Years of Experience in Pediatric Wards (n=300)

Findings demonstrated that in terms of years of experience in pediatric wards, there are no significant difference in nurse practices (p=0.450). This could be because nurses with longer years of experience were not involved in direct patient care and were more involved in administrative affairs

This finding is constant with (Khalifa et al., 2018), who conducted a study at Kafr El Sheikh General Hospital on Nurses' Knowledge and Practices about Management of Acute Pain among Injured Persons, and found no correlation between nursing experience in emergency and their practices.

In the same context, (EZE Ojerinde et al., 2016) conducted a study to analyze nurses' knowledge and practice of pain management in Nigeria, and found that there was no statistically significant relationship between nurses' practices and their years of experience (p-value=0.6).

In comparison to a cross-sectional study conducted by (Mulugeta, 2015) to evaluate adult postoperative pain treatment practice among nurses This

study also discovered a link between a nurse's working environment and her degree of practice. Nurses in the surgical intensive care unit (SICU) performed better than nurses in the surgical ward. This could be because SICU is a key patient care area where well-educated and qualified nurses may be assigned, which could affect the quality of practice.

5.11.8. Differences in Practices with regard Nurses Education Level (n=300)

Findings demonstrated that there are significant differences in nurses practices with regard education level (p=0.036), nurses practices significantly increased with bachelor's degree than the others degree

This result in the same direction with (Thapa and Gurung, 2020) who carried out a study about nurses' knowledge, attitude and practice regarding postoperative pain management at selected hospitals, Bharatpur, Nepal, and clarified that, there was statistically significant association between nurses' level of practice and professional qualification (p-0.002). The interpretation for that is that nurses who have high education level may have more knowledge about professionalism, they work properly, as well, manage pain appropriately.

On the other hand, Jaleta et al (2020) carried out a cross-sectional study on 405 nurses to assess practice toward post operative pain management and associated factors among nurses, and their findings revealed that the likelihoods of having good practice among nurses with a Bachelor educational background are higher. This could be because workers with higher academic levels put their knowledge into practice more often, and skills can be developed more quickly if one has prior understanding of the task to be completed.

5.11.9. Differences in practices with regard Nurses Training (n=300)

Findings demonstrated that there were significant differences in nurses practices with regard training sessions (p=0.017), nurses practices significantly increased with training sessions compared with practices for nurses who are no trained .

This finding is consistent with the results of (Jaleta et al., 2020), who conducted a study titled Practice Towards Postoperative Pain Management and Associated Factors Among Nurses Working in Referral Hospitals: A Cross-sectional Study and discovered a link between the level of practices and nurses' postoperative pain management training.

According to the researcher and previous literatures, pain assessment and management practices should be based on a scientific base of knowledge in pain topics, and developing a protocol of care for pain assessment and management is important in pediatric wards to relieve the children's suffering. According to the researcher clinical observation in health facilities, there is no educational program about pain assessment and management applied, and nothing of pain assessment tools were used at the pediatric wards.

5.12. Relationship between nurses' knowledge and their attitudes and practices

The bivariate correlation analysis presents that there is significant difference (positive) between nurses' knowledge and attitudes; and knowledge with practices at p-value= 0.018.

This finding in similarity with (Zhang et al., 2021) in their study about Knowledge, attitude, and practice of nurses in intensive care unit on preventing medical device–related pressure injury in western China, and stated that, level of hospital, scores of attitude, and scores of practice were associated with intensive care units (ICUs) nurses' knowledge.

In the same direction, a descriptive survey study that conducted by (Odunayo et al., 2020) to assess the level of nurses' attitude towards effective pain management, and assess the level of nurses' attitude towards effective pain management in Nigeria, and reported that, there is a significant relationship between level of knowledge of pain and attitude of nurses towards effective pain management in selected hospitals in Ibadan. The p-value is less than 0.05. This means that when nurses get a better understanding of pain treatment, they are

more likely to have a favorable attitude toward patient pain management, especially in resource-constrained settings.

It is obvious that the nurses' behaviors develop and improve in a positive direction that serves the child for his suffering from pain, based on the nurses' constantly evolving knowledge, especially if it is based on a deep study towards taking strict measures in emergency cases.

Moreover, this finding conform to a previous study which found that, a significant relationship between knowledge, attitudes of nurses and their practices of pain management in neonates ($r = 0.715$; p value = 0,000) and ($r = 0.659$; p value = 0,000 (Zubaidah and Naviati, 2018). The implications of the findings are clear that the focus on necessity of changing attitudes and improving their knowledge in order to enhance pain management practices of nurses for children.

5.13. Factors Influencing Nurses Knowledge regarding Pain Management of Hospitalized Children

Liner regression confirmed that the organizational, parents, and nurses' factors have been influenced nurses' knowledge towards pain management of hospitalized children at p-value (≤ 0.05).

This finding is consistent with the findings of (Miftah et al., 2017), who conducted a study on knowledge and factors associated with pain management for hospitalized children among nurses working in public hospitals in Ethiopia, and demonstrated that different nursing factors influence nurses' knowledge, such as failure to read guidelines on pediatric nursing pain management.

Similarly, (Khoza, 2014) added that Two-thirds of respondents reported that there were no pain management guidelines, who studied knowledge, attitudes, and practices of neonatal staff concerning neonatal pain management guidelines in the neonatal wards in which they worked

while, (Jira et al., 2020) mentioned that, pain management guideline, lack of non-pharmacological pain management equipment, monthly income and training were significantly associated with nurses' knowledge of no pharmacological pain management.

5.14. Factors Influencing Nurses Attitudes regarding Pain Management of Hospitalized Children

Liner regression confirmed that the parents and children's factors have been influenced the nurse's attitudes towards pain management of hospitalized children at p-value (≤ 0.05).

This finding is consistent with the findings of (Alotaibi et al., 2018), who conducted a study on Pediatric pain management: knowledge, attitudes, barriers, and facilitators among nurses – integrative review, and found that parents' reluctance to report pain has an impact on the effectiveness of pediatric pain management.

similarly, another, a descriptive cross-sectional web-based study that conducted by (Alghadeer et al., 2021) to assess of saudi mothers' attitudes towards their children's pain and its management and stated that, one of the main barriers to attitudes toward pediatric pain management is the fear of adverse effects and addiction to analgesics.

5.15. Factors Influencing Nurses Practices regarding Pain Management of Hospitalized Children

Liner regression confirmed that the organization, parents and children's factors have been influenced the nurses practices concerning pain management of hospitalized children at p-value (≤ 0.05).

This finding is consistent with the findings of (Mehrnoush et al., 2018), who investigated "Factors Influencing Neonatal Pain Management from the Perspectives of Nurses and Physicians in a Neonatal Intensive Care Unit" and found that the main barriers to the application of newborn pain management by nurses and physicians in the NICU were organizational reasons such as the

lack of an infant pain management policy, work environment circumstances, and management concerns.

In the same context, (Aziznejadroshan et al., 2017) conducted a study to explore the experience of nurses' barriers to pain management in pediatric units, and reported that, inappropriate organizational structure, individual characteristics of child and parents, and inefficacy of companions. These themes indicated the barriers to pediatric pain management based on research conditions and experience of nurses in the pediatric wards. That effect on optimal pain management.

Previous related studies (Attia and Abdella, 2020) used a cross-sectional descriptive study with a sample of all nurses (40) to investigate nurses' knowledge and barriers regarding non-pharmacological pain management for high-risk neonates, and clarified that the main barriers to pain management were the absence of pain protocols.

Moreover, (Beshir,2015) who conducted a study entitled "assessment of postoperative pediatrics pain management Practice of nurses in government hospitals of addis ababa", and indicated that, factors pediatric assessment tool, and guideline and drug availability had an important impact on to postoperative pediatrics pain management practice.

Additionally, institution-based cross-sectional study was conducted among 103 nurses that conducted by (Asmare, 2020) to investigate assessment of knowledge, attitude, practice and associated Factors of nurses towards postoperative pain management in Ethiopia, at 2020, who reported that an organizational protocol to pain assessment had significant association with nurse's practice on post operative pain management (POPM).

Additionally, this finding follow to a previous study which found that , unavailability of sufficient pain medication in the ward, lack of protocol, and poor communication pain assessment were the three highest barriers

perceived by nurses in postoperative pain management practice (Dendir et al., 2020).

   As a summary, the researcher learned through the findings; that there is little interest of caregivers specifically the nurses in pain of children, as pain is not evaluated by the nursing staff, as there are several factors that influence the assessment of pain in children, including factors related to the health institution and factors related to the nursing staff. Parents and children, as well as , learned that nurses require extensive experience and extensive training in dealing with pain in children, as pain is considered by some to be the fifth vital sign that must be evaluated when children are admitted to the hospital with complaining of the major issue as pain which effect on child behaviors .
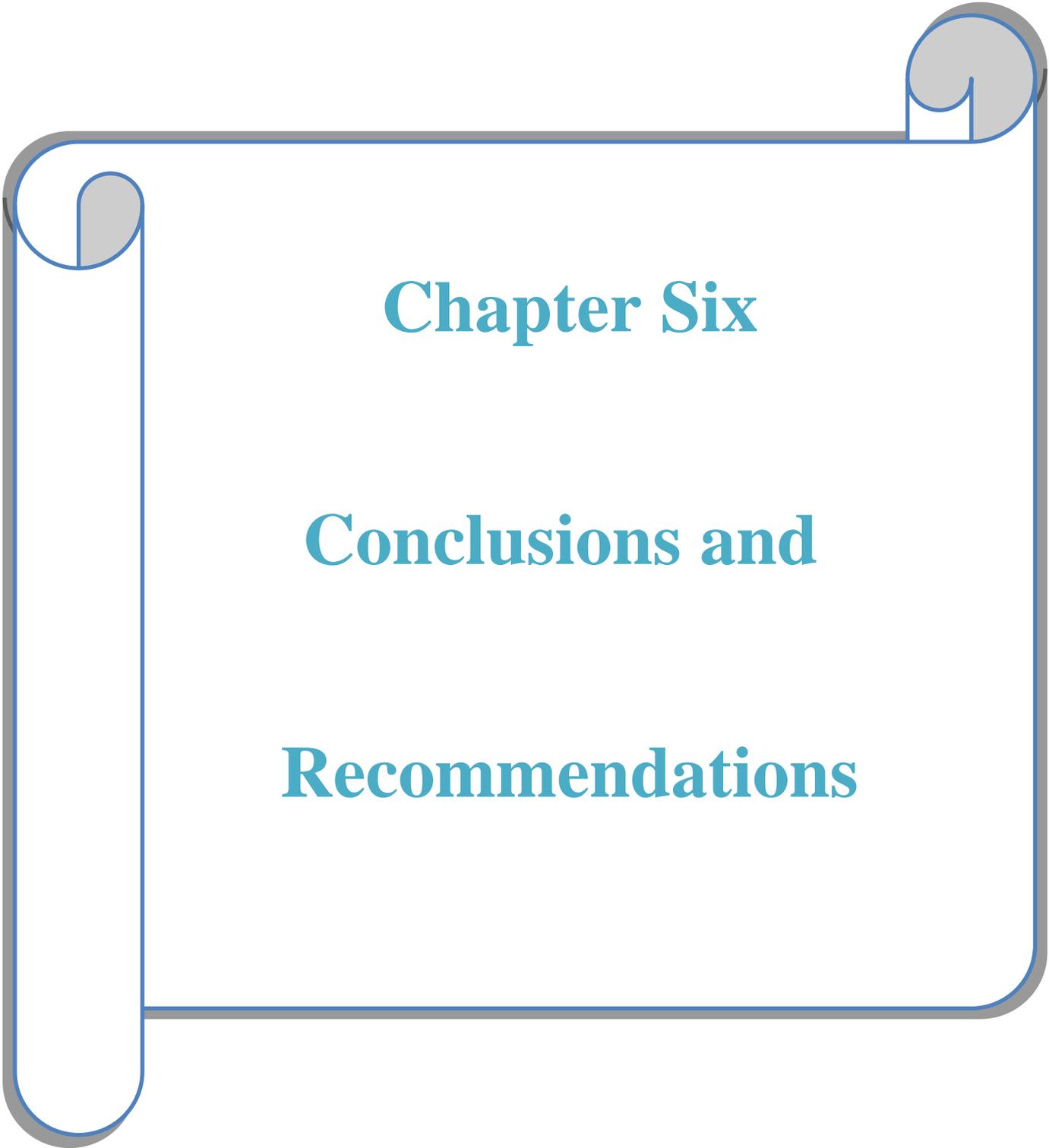
Chapter Six

Conclusions and

Recommendations

Chapter Six

Conclusions and Recommendations

6.1. Conclusions:

According to the results of the study, the investigator has come up with several conclusions, which are listed as follow:

1. Vast majority of nurses' have poor knowledge regarding pain management

2. Overall nurses' have neutral attitudes toward pain management

3. Majority of participants have poor practices regarding children pain management

4. Gender, workplace, experience in pediatric wards, level of education, and training course have effect on nurses' knowledge.

5. Nurses' age, marital status, residence, and years of experience in hospital have not influenced on their knowledge.

6. Nurse's attitudes affected by their Level of education, and marital status .

7. Nurses' level of education, gender, work place, training courses, and years' experience in hospital influence on nurses practice.

8. There was relationship between nurse's knowledge with their attitudes, and practices.

9. The organizational, parents, and nurse's factors influence on nurse's knowledge regarding pain management of hospitalized children

10. The parents and children's factors influence on nurse's attitudes concerning pain management of hospitalized children

11. The organization , parents and children's factors influence on nurse's practices relating to pain management of hospitalized children

6.2. Recommendations:

According to the results of the current study, the investigator decided the next recommendations:

6.2.1. Ministry of Health and Environment Iraq:

1. By allocating funding for pain management training for nurses, nurse administrators can increase the quality of nursing care in this area and thereby improve the quality of life for patients suffering from pain.

2. Organizing training workshops for nurses of all levels, which focus on how to deal with children of different ages and suffering from pain, starting from its assessment to controlling and manage it.

3. Regular educational seminars and professional training, as presenting the most recent research regarding pain management in the pediatric wards and present everything that is up to date in this field.

4. Implement a variety of educational programs and clinical field trainings to help nurses better comprehend and apply relevant information and practice.

5. Designing a booklet containing the knowledge, related to the pain management of hospitalized children and acts on it as, a standardized guideline protocol for the provision of the standard of pediatric pain care.

6- Nurses must expand their knowledge and practice of neonatal pain care.

7- Those nurses who had appropriate knowledge and expertise in neonatal pain treatment should instruct their respective colleagues who were deficient in neonatal pain management.

8- Hospitals should also have policies in place to treat the suffering of infants. .

9- Emphasize on pain assessment and management knowledge and skills in nursing institutes curriculum for nursing students .

10. Establish a continuous professional education program on pain and its assessment, focusing on assessment methods, recommendations, and how to use assessment tools, protocols, and charts to accurately document pediatric pain management.

11. Should provide regular continuing profession development training on pain management among children.

12. As a healthcare facility, it is imperative that all nurses working in pediatric units adhere to strict guidelines, policies, and routine supervision, supported by incentives, to ensure that all nurses adhere to pain management guidelines and make appropriate use of pain management tools when evaluating patients' pain .

13. The content of nursing courses should be examined for its depth, correctness, and relevance to pain assessment and management knowledge that is consistent with current standards of practice.

6.2.2: Ministry of Higher Education and Scientific Research:

1- children pain management should be included in the educational curriculum, which should be reviewed by the ministry of health and nursing colleges.

2. Qualitative research on pediatric pain treatment is also needed to better understand nurses' knowledge and practice as well as their attitudes.

3. Future studies are required to analyze the impact of the pain education program on a wider Iraqi nursing community, encompassing diverse sectors of the health care system.

4. As part of a larger study on post-operative pain management, conduct similar multi-site research and distribute this knowledge to the general population via various media outlets, such as print magazines.
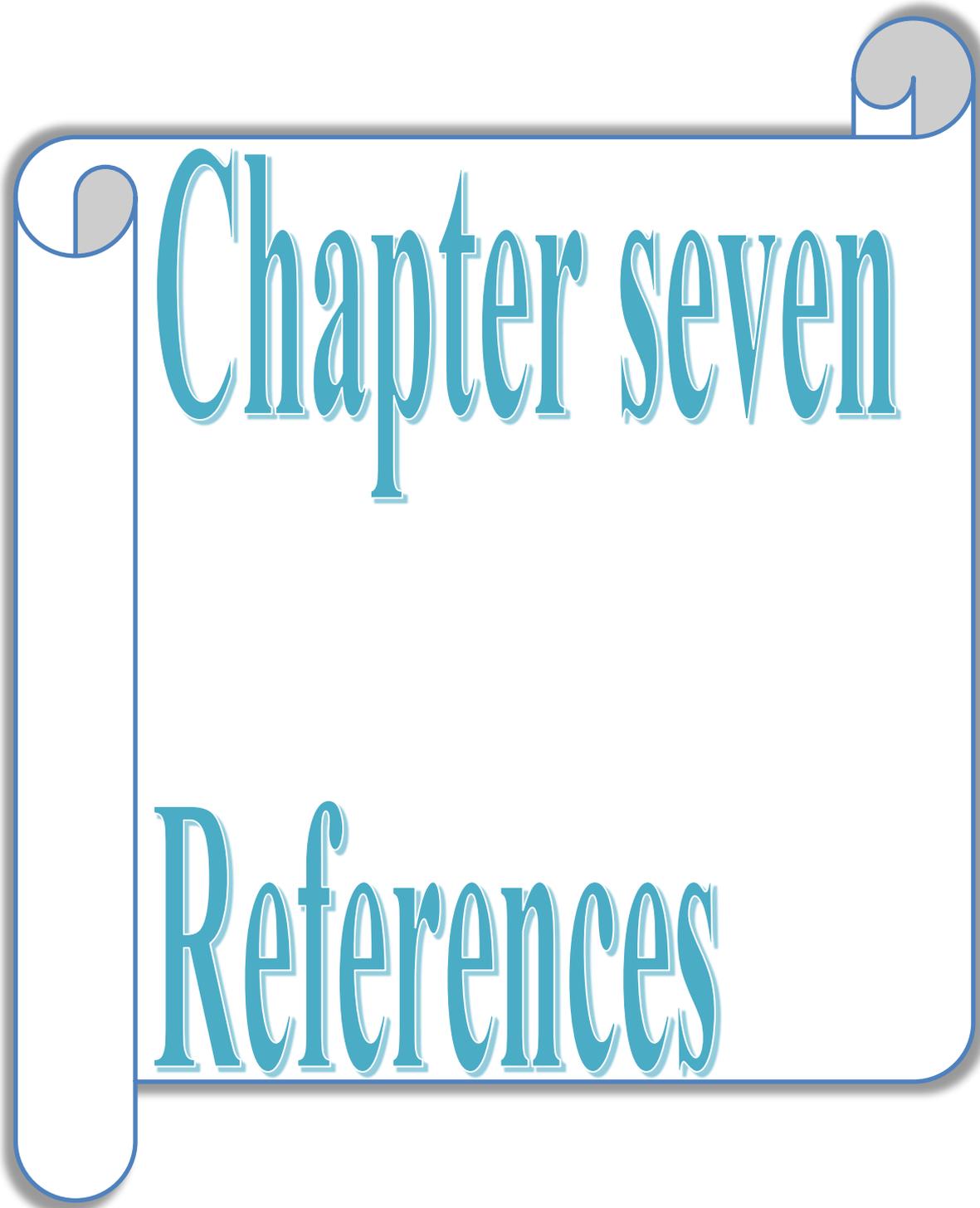
Chapter seven

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Appendices

ADMINISTRATIVE ARRANGEMENTS

Ref. No. :
Date: /

العدد : ٨٧٩
التاريخ : ١٧ / ٢ / ٢٠٢١

الى / دائرة صحة بابل / مركز التدريب والتنمية البشريه
م/ تسهيل مهمة

تحية طيبة :

يطيب لنا حسن التواصل معكم ويرجى تفضلكم بتسهيل مهمة طالب الدكتوراه
(محمد طالب عبد حمادي) لغرض جمع عينة دراسة الدكتوراه والخاصة بالبحث
الموسوم :

العوامل المؤثرة في معارف ، اتجاهات وممارسات الممرضين المتعلقة بمعالجة
الألم للأطفال الراقدين في مستشفيات محافظة بابل

Factors Influencing Knowledge, Attitudes , and Practices of Nurses Pain
Management of Hospitalized Children in Babylon Province

مع الاحترام ...

أ.م.د. حسام عباس داود
معاون العميد للشؤون العلمية والدراسات العليا
١٧ / ٣ / ٢٠٢١

صورة عنه الى //
• مكتب السيد العميد للتفضل بالاطلاع مع الاحترام .
• لجنة الدراسات العليا
• الصادرة .

إلى / مستشفى الأمام الصادق (ع)
مستشفى النور للأطفال ، مستشفى بابل التعليمي للنسائية والأطفال
مستشفى الهاشمية العام ، مستشفى ابن سيف للاطفال
م/ تسهيل مهمة

السلام عليكم ...

أشارة إلى كتاب جامعة بابل / كلية التمريض/ لجنة الدراسات العليا ذي العدد ٨٧٩
في ١٧/٣/ ٢٠٢١

نرفق لكم ربطا استمارات الموافقة المبدئية لمشروع البحث العائد للباحث طالب الدراسات
الدكتوراه (محمد طالب عبد حمادي)

للتفضل بالاطلاع وتسهيل مهمة الموما أليه من خلال توقيع وختم استمارات اجراء البحث
المرفقة في مؤسساتكم وحسب الضوابط والإمكانات لاستحصال الموافقة المبدئية ليتسنى لنا
أجراء اللازم على أن لا تتحمل مؤسساتكم أية تبعات مادية وقانونية .... مع الاحترام

المرفقات :
استمارة عدد /٢

الدكتور
محمد عبد الله عجرش
مدير مركز التدريب والتنمية البشرية(.
٢٠٢١ / /

نسخة منه إلى :

• مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

جمهورية العـــراق		
Ministry Of Health **Babylon Health Directorate** Email:- Babel_Healthmoh@yahoo.com Tel:282628 or 282621		وزارة الصحة والبيئة دائرة صحة محافظة بابـــل المديـــر العـــام مركـز التدريب والتنمية البشرية لجنة البحوث

استمارة رقم
رقم القرار : ٤
تاريخ القرار ٢٠٢١/٥/٢٤

قرار لجنة البحوث

تحية طيبة ...

درست لجنة البحوث في دائرة صحة بابل مشروع البحث المعنونة (العوامل المؤثرة في معارف ، اتجاهات وممارسات الممرضين المتعلقة بمعالجة الألم للأطفال الراقدين في مستشفيات بابل) والمقدم من الباحث

(محمد طالب عبد حمادي) إلى وحدة أدارة البحوث والمعرفي مركز التدريب والتنمية البشرية في دائرة صحة بابل بتاريخ ٢٠٢١/٥/٢٣ وقررت :

قبول مشروع البحث أعلاه كونه مستوفيا للمعايير المعتمدة في وزارة الصحة والخاصة بتنفيذ البحوث ولا مانع من تنفيذه في مؤسسات الدائرة .

مــــع الاحتـــرام

الدكتور / محمد عبد الله عجرش

رئيس لجنة البحوث
/ ٢٠٢١

نسخة منه إلى :
●مكتب المدير العام / مركز التدريب والتنمية البشرية / وحدة إدارة البحوث ... مع الأوليات.

وزارة الصحة والبيئة		Ministry Of Health
دائرة صحة محافظة بابــــل		Babylon Health Directorate
المديــــر العـــــام		Email:-
مركــز التدريب والتنمية البشرية		Babel_Healthmoh@yahoo.com
وحدة أدارة البحوث		Tel:282628 or 282621

العدد : ٤ ٧ >

التاريخ: ١٧ / ٢ /٢٠٢١

وزارة الصحة
دائرة صحة بابل
كز التدريب والتنمية البشرية

إلى / مستشفى الأمام الصادق (ع)
مستشفى النور للأطفال ، مستشفى بابل التعليمي للنسائية والأطفال
مستشفى الهاشمية العام ، مستشفى ابن سيف للاطفال
م/ تسهيل مهمة

السلام عليكم ...
أشارة إلى كتاب جامعة بابل / كلية التمريض/ لجنة الدراسات العليا ذي العدد ٨٧٩
في ٢٠٢١/ ٣/١٧
نرفق لكم ربطا استمارات الموافقة المبدئية لمشروع البحث العائد للباحث طالب الدراسات
الدكتوراه (محمد طالب عبد حمادي)
للتفضل بالاطلاع وتسهيل مهمة الموما أليه من خلال توقيع وختم استمارات اجراء البحث
المرفقة في مؤسساتكم وحسب الضوابط والإمكانات لاستحصال الموافقة المبدئية ليتسنى لنا
أجراء اللازم على أن لا تتحمل مؤسساتكم أية تبعات مادية وقانونية .... مع الاحترام

المرفقات :
استمارة عدد ٢/

الدكتور
محمد عبد الله عجرش
مدير مركز التدريب والتنمية البشرية
/ / ٢٠٢١

اشرف دا؟ العوادي
مدير مستشف

١٢/٢٤

نسخة منه إلى :
• مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

		وزارة الصحة والبيئة
Ministry Of Health Babylon Health Directorate Email:- Babel_Healthmoh@yahoo.com Tel:282628 or 282621		دائرة صحة محافظة بابـــل المديـــر العـــام مركـز التدريب والتنمية البشرية وحدة أدارة البحوث
		العدد : ٨٧٩
		التاريخ: ٢١ / ٢ /٢٠٢١

إلى / مستشفى الأمام الصادق (ع)

مستشفى النور للأطفال ، مستشفى بابل التعليمي للنسائية والأطفال
مستشفى الهاشمية العام ، مستشفى ابن سيف للاطفال

م/ تسهيل مهمة

السلام عليكم ...

أشارة إلى كتاب جامعة بابل / كلية التمريض/ لجنة الدراسات العليا ذي العدد ٨٧٩ في ٢٠٢١ /٣/١٧

نرفق لكم ربطا استمارات الموافقة المبدئية لمشروع البحث العائد للباحث طالب الدراسات الدكتوراه (محمد طالب عبد حمادي)

للتفضل بالاطلاع وتسهيل مهمة الموما أليه من خلال توقيع وختم استمارات اجراء البحث المرفقة في مؤسساتكم وحسب الضوابط والإمكانات لاستحصال الموافقة المبدئية ليتسنى لنا أجراء اللازم على أن لا تتحمل مؤسساتكم أية تبعات مادية وقانونية .... مع الاحترام

المرفقات :
استمارة عدد /٢

الدكتور

محمد عبد الله عجرش
مدير مركز التدريب والتنمية البشرية
/ / ٢٠٢١

الدكتورة
زهراء جاسم السلطاني
اختصاص طلب طوارئ
٢/١٨

نسخة منه إلى :

• مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

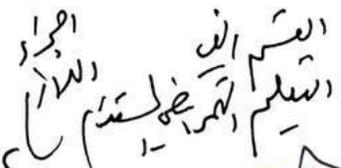|		وزارة الصحة والبيئة
Ministry Of Health Babylon Health Directorate Email:- Babel_Healthmoh@yahoo.com Tel:282628 or 282621		دائرة صحة محافظة بابـــل المديــر العـــام مركـــز التدريب والتنمية البشرية وحدة أدارة البحوث
		العدد : ٢٧٤
		التاريخ: ١٧ / ٢ /٢٠٢١

وزارة الصحة
دائرة صحة بابل
مركز التدريب والتنمية البشرية

إلى / مستشفى الأمام الصادق (ع)
مستشفى النور للأطفال ، مستشفى بابل التعليمي للنسائية والأطفال
مستشفى الهاشمية العام ، مستشفى ابن سيف للاطفال
م/ تسهيل مهمة

السلام عليكم ...

أشارة إلى كتاب جامعة بابل / كلية التمريض/ لجنة الدراسات العليا ذي العدد ٨٧٩
في ٢٠٢١ /٣/١٧
نرفق لكم ربطا استمارات الموافقة المبدئية لمشروع البحث العائد للباحث طالب الدراسات
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المرفقة في مؤسساتكم وحسب الضوابط والإمكانات لاستحصال الموافقة المبدئية ليتسنى لنا
أجراء اللازم على أن لا تتحمل مؤسساتكم أية تبعات مادية وقانونية .... مع الاحترام

المرفقات :
استمارة عدد ٢/

الدكتور
محمد عبد الله عجرش
مدير مركز التدريب والتنمية البشرية
٢٠٢١ / /

الاداري / مسؤول
الكادر التمريضي

نسخة منه إلى :
• مركز التدريب والتنمية البشرية / وحدة أدارة البحوث مع الأوليات ...

Appendix B

ETHICAL CONSIDERATION

السيد المعاون العلمي المحترم

السيد رئيس تمريض فرع صحة الطفل والمراهق المحترم

اللجنة العلمية والأخلاقيات المحترمون

م\ اخلاقيات البحث

يرجى التفضل بالموافقة على عرض موضوع (الدكتوراه) على اللجنة العلمية واخلاقيات البحث العلمي عن موضوع اطروحتي الموسومة باللغة العربية ....(العوامل المؤثرة في معارف ،اتجاهات وممارسات الممرضين المتعلقة بمعالجة الألم للأطفال الراقدين في مستشفيات محافظة بابل.)........

واللغة الإنكليزية.........(Factors Influencing Knowledge, Attitudes, and Practices of Nurses Regarding Pain Management of Hospitalized Children in Babylon province.).

مع التقدير

اسم المشرف وتوقيعه. أ.م. د. نهاد محمد قاسم الدوري.

اسم الطالب وتوقيعه. محمد عبد حمادي.

رئيس الفرع وتوقيعه أ.م. د. نهاد محمد قاسم الدوري.

الدكتور
حسام شبانى داود
المعاون العلمي
١٧ / ٣ / ٢٠٢

ملاحظة: ترفق جميع الاستمارات الخاصة بلجنة اخلاقيات البحث مع الطلب. (Ethical form 1, Ethical form2, Ethical Form3)

جـــامـــعة بـــابـــل

كـــلية التمريـــض

لجنة اخلاقيات البحث العلمي

Approval Letter

To,

Mohammed Talib Abed

The Research Ethics committee at the **University of Babylon, College of Nursing** has reviewed and discussed your application to conduct the research study entitled **"Factors Influencing Knowledge, Attitudes, and Practices of Nurses regarding Pain Management of Hospitalized Children in Babylon Province."**

The Following documents have been reviewed and approved:

1. Research protocol
2. Research instrument/s
3. Participant informed consent

Committee Decision:

The committee approves the study to be conducted in the presented form. The Research Ethics committee expects to be informed about any changes occurring during the study, any revision in the protocol and participant informed consent.

Prof. Dr. Salma K. Jehad

Chair Committee

College of Nursing

Research Ethical Committee

16 / 3 /2021

Appendix C

QUESTIONNAIRE

Part one: Socio demographic characteristics of the participants.

1. Hospital …………………

2. Working place

Emergency ward [ ]

Medical ward [ ]

Surgical ward [ ]

Others [ ]

3. Age (years)………………

4. Gender

Male [ ]   Female [ ]

5. How many years have you been working as a nurse..................?

6. Years of experience in pediatric wards.........................

7. Educational level.

Nursing course graduate [ ]

Nursing school graduate [ ]

Nursing preparatory graduate [ ]

Nursing Institute graduate [ ]

Nursing college Graduate and above [ ]

8-Marital status

Single [ ]   Married [ ]

Divorced/sep [ ]   Widowed [ ]

9- Environment:

Urban [ ]   Rural [ ]

10- Have you ever attended a training course on pain management?   Yes [ ]
No. [ ]

Knowledge, attitude and practices questionnaire.

Section A: Knowledge towards Pain management

Direction: Please put (✓) in the column you chosen.

NO	Parameter		True	False
1.	Pain is unpleasant sensory and emotional experience associated with actual or potential tissue damage			
2.	Pain should be assessed before and after administering pain medications .			
3.	Physiological pain assessment is a more suitable method than behavioral and self-reporting assessment of pain in children.			

4.	The most likely reason a patient with pain would request increased doses of pain medication is requesting more staff attention		
5.	Children's pain remains, under-diagnosed and under-treated and has significant physical, psychological, and financial consequences.		
6.	Giving narcotics on a regular schedule is preferred over as needed (PRN) schedule for continuous pain		
7.	Ibuprofen and other non-steroidal anti-inflammatory agents are effective analgesics for mild to moderate pain.		
8.	Providing comfort, changing position and massage may help to reduce muscle tension which in turn, can reduce pain.		
9.	Distraction children by using music or story telling during invasive procedure will help to decrease children pain		
10.	Non-pharmacological methods make pain more tolerable and give children a greater sense of control over painful situation		
11	It is important to frequently assess and document pain in patients able to communicate		
12	The most accurate judge of the pain intensity is the Patient himself		
13	Lack of pain expression does not mean lack of pain		

14	Increasing analgesic requirements are signs that the patient is becoming addicted to the narcotic		
15	children need better attention for managing their pain		
16	Intramuscular (IM) injection is the best way to provide pain relief medication		
17	Necessity of continuous pain assessment and efficacy of the therapy, for assuring the effectiveness of treatment.		
18	Parents should not be present during painful procedures		
19	After the initial recommended dose of opioid analgesic, subsequent doses should be adjusted in accordance with the individual patient's response.		
20	Pediatric patients having severe chronic pain often need higher dosages of pain meds than patients with acute pain.		
21	The cause of the baby's/child's pain is always a disease		
22	The recommended route of administration of opioid analgesics to children with Continuous persistent pain is intravenous		

23	Because their nervous system is underdeveloped, children under two years of age have decreased pain sensitivity		
24	children may sleep in spite severe pain		
25	The usual duration of analgesia of Morphine IV is 4-5 hours.		
26	Respiratory depression rarely occurs in children who have been receiving stable doses of opioids over months		
27	Young infants, less than 6 months of age, cannot tolerate opioids for pain relief.		
28	Children less than 8 years old cannot reliably report pain so nurses should rely solely on parent's assessment of the child's pain intensity		
29	To be effective, heat and cold should be applied directly to the painful area		
30	It is important giving analgesics for patients with reduced facial expression.		
31	The side effects of narcotics should be observed at least 20 minutes after administration		

Section B: Attitude towards Pain management

Direction: Please put (✓) in the column you chosen.

NO	Parameter Response	Agree	undecided	Disagree
1.	Pain is seen in the child behavior			
2.	Child who can be distracted from pain usually do not have severe pain			
3.	Non-pharmacological interventions are very effective for mild to moderate pain not severe pain.			
4.	Medical hospitalized children usually do not experience pain which is as intense as that experienced by surgical hospitalized children.			
5.	Using pain assessment tools usually makes nursing more complicated and consumes time for other ward activities.			
6.	Child who complain of pain often, will be seeking staff attention.			
7.	The nurses" personal experience with pain affects the way the nurse manages pain on children.			

8.	Pain management education received during nurse training is adequate for effective pain management post qualification.			
9.	The legal processes required to obtain and administer narcotics makes it difficult to deliver effective pain management.			
10.	Nurses are best judges of the patient's pain intensity because they spend 24 hours with the patient.			
11.	A child with medical health problem experience pain as often as surgical child.			
12.	Because children are not medically educated cannot give a reliable report of their pain.			
13.	Child family support is necessary to relive their pain.			
14	The child may deny pain to avoid analgesia by painful route.			
15	Infants and children experience pain equal to that experienced by adults			
16	The child with pain should be encouraged to endure as much pain as possible before resorting to a pain relief measure			
17	Pain management and pain relief are of priority in children treatment			

18	Children have the right to appropriate assessment and management of their pain			
19	The most accurate judge of the intensity of the children's pain is the her/his primary nurse			
20	Assessment and control of child pain lead to improved his/her parents satisfaction			
21	Failure to assess and manage the child's pain affects his body and mind in the long term			
22	The nurse's physical and mental fatigue can affect children pain relief			
23	To ensure patient's comfort and pain relief is one of the most important tasks of nurses			
24	Available tools for measurement of pain are the best for determining pain severity in children			
25	When the necessary procedures have been done for the patient, the persistence of pain does not cause problems			
26	Measurement and control of child's pain can affect the healing process and reduces the hospital stay			
27	Measurement and control of pain in child leads to improved quality of child's life			
28	The use of placebo is important in determining if the child pain is real.			
29	When a child complains of pain the best management is to assess the genuineness of the pain.			
30	Observable changes in vital signs must be relied on to verify child complain of severe pain.			

3`	To better assess child pain, the nurse can discuss with her/his parents			
32	Like other vital signs, pain score should be Documented			
33	Communicating with and educating child's parents play an effective role in relieving pain			
34	Using pain assessment tools for determining child's pain lead to an appropriate method of pain relief			
35	Evaluation and measurement of child's pain should be considered as one of the vital signs when examining the child			

Section C: Pain management practice

Direction: Please consider the following behaviors as they relate to your practice. You should consider your reaction to each behavior and mark the rating accordingly.

NO	Parameter	Response				
	Codes: (1) Never (2) Infrequently (3) Occasionally (4) Frequently (5) Constantly					
1.	After surgery you observe behavioral change in children (such as being awake, crying, limit body movement, withdrawal, agitation, or not talking) in order to assess their pain.	1	2	3	4	5
2.	Observe physiological change in children (such BP, respiration rate, heart rate, temperature, or O2saturation) in order to assess their pain.	1	2	3	4	5
3.	Assess children pain at least once a shift	1	2	3	4	5

		1	2	3	4	5
4.	Use self-reporting pain scale (such as visual analog scale (VAS), FACE scale) for the assessment of children pain in practice	1	2	3	4	5
5.	Use a behavioral pain scale such as FLACC (Face, Legs, Activity, Cry, and Consolability) for assessment of young children pain in your nursing practice.	1	2	3	4	5
6.	Administer pain medication to children as order by a doctor around the clock.	1	2	3	4	5
7.	Observe the side effect of pain medication (such as morphine) after giving it to the child	1	2	3	4	5
8.	Observe the following side effect such as respiratory distress, urticaria, nausea, vomiting, if a child receives opioids drug.	1	2	3	4	5
9.	Administer pain medication to children by your own judgment.	1	2	3	4	5
10	Administer additional pain medication to relive pain when needed (PRN)	1	2	3	4	5
11	Reassess children pain after giving pain medication in order to evaluate the effectiveness of pain medication	1	2	3	4	5
12	1 Distract children from pain by using several techniques	1	2	3	4	5

	(such as given them toy for playing, listen to music, telling stories touching them.)					
13	1 Talk with children with a soft voice to comfort them when they are in pain.	1	2	3	4	5

14	Arrange the environment to be calm and quite in order to help children sleep easily.	1	2	3	4	5
15	1 Advise parents and give them opportunities to help in reducing their children pain.	1	2	3	4	5
16	1 Ask parent to be involved in assessing their children pain (such asking children if he /she has pain by using familiar word and language).	1	2	3	4	5
17	1 After surgery you provide comfortable position to help relive children pain.	1	2	3	4	5
18	1 Often tell children to tell the nurse when they are in pain.	1	2	3	4	5
19	1 Ask and help children to support the painful areas when moving or coughing after surgery.	1	2	3	4	5
20	I discuss with my colleagues the methods for relieving pediatric patients' distress.					
21	I would consider adjusting schedules of procedures and methods of providing interventions to promote the comfort of pediatric patients.					
22	Ask about pain regularly; assess pain systematically					
23	You administer Injection narcotics under medical supervision.					

Section D: Factor Affecting pain management

Direction: Please put (✓) in the column you chosen.

NO	Parameter	Yes	No
A	**Organization factors:**		
	Are there any pain management standards or protocols in your hospital?		
	Is there any standard pain assessment tool in your hospital?		
	Lack of protocols for pain management affects your ability to manage pain of children		
	No designated area for charting pain affects your ability to manage pain of children		
	Poor communication of pain assessment priorities at the unit affects your ability to manage pain of children		
	Insufficient analgesia dosage prescribes affects your ability to manage pain of children		
	Are essential analgesics available in your hospital (like opioids, NSAIDs)		
	A lack of cooperation between nursing and medical staff affects your ability to manage pain of children		
	Low staff numbers affect your ability to manage pain of children		

	Nursing workload affects your ability to manage the pain of children		
	Parents factors:		
	Parents' reluctance to have children receive medications affects your ability to manage pain of children		
	Parents concern about side effects of analgesics medications affects your ability to manage pain of children		
	parents concern about children becoming addicted affects your ability to manage pain of children		
C	**Children factors:**		
	Children's reluctance to take pain medications affects your ability to manage pain of children		
	Children's reluctance to report pain affects your ability to manage pain of children		
	Do children cooperate in managing pain that have past history of pain management		
	Patient instability e.g. unstable hemodynamic affects your ability to manage the pain of children		
	Patient inability to communicate affects your ability to manage pain of children		
D	**Nurses factors:**		

	Is there pediatric pain management contents included in the nursing curriculum when you studied?		
	Have you undertaken any further continue education(training) relate to pediatric pain management after graduation?		
	Have you read any Guidelines for managing children's pain?		
	Lack of training affects your ability to manage pain of children		
	Lack of familiarity with analgesics affects your ability to manage the pain of children		
	Sedation interfering with pain assessment affects your ability to manage pain of children		
	Low priority of pain management by unit team affects your ability to manage pain of children		
	Poor documentation of pain assessment and management affects your ability to manage pain of children		
E	**Cultural and believes factors**		
	Do you face problems during pain management for the child due to cultural belief?		
	Parents belief that pain medications should be given as little as possible affects your ability to manage pain of children		
	Do you think having common pain management guide lines improves quality of care?		

رقم الاستمارة   (   )

الجزء الأول: المعلومات الديموغرافية للمشاركين في الدراسة

1-العمر _____ س   ☐

2- الجنس   ذكر   ☐   انثى   ☐

3- محل السكن: أ. حضر   ب. ريف   ☐

4-مكان العمل: أ.   ردهة طوارئ ☐   ب. ردهة باطنية   ☐

ت. ردهة جراحية   ☐   ث . أخرى تذكر   ☐

5-عدد السنوات التي عملت بها بالمستشفى: ☐

6-عدد سنوات الخبرة بردهات الأطفال: ☐

7- المؤهل التعليمي: _____

أ-   خريج دورة تمريض   ☐

ب-   خريج إعدادية تمريض   ☐

ت-   معهد تمريض   ☐

ث-   كلية فما فوق: ☐

8-الحالة الزوجية:

أ.اعزب ☐   ب. متزوج   ☐   ت. مطلق   ☐

ث. ارمل   ☐

9ـ المشاركة في دورة تدريبية فيما يتعلق بعلاج الألم عند الاطفال:

نعم ☐   لا ☐

استبانة حول معارف وتوجهات وممارسات الممرضين فيما يتعلق بمعالجة الألم
القسم الأول(A) معارف الممرضين فيما يتعلق بعلاج الألم :

الاتجاه: يرجى وضع (✔) في العمود الذي تم اختياره.

لا اعرف	خطا	صح	البنود	الرقم
			الألم هو تجربة حسية وعاطفية غير سارة مرتبطة بتلف الأنسجة الفعلي أو المحتمل	1
			ينبغي تقييم الألم قبل وبعد إعطاء ادوية الألم	2
			تقييم الألم فسيولوجيا هي الطريقة الأكثر ملاءمة من التقييم السلوكي والتقرير الذاتي للألم في الأطفال.	3
			السبب الأكثر احتماليتا لطلب المريض الذي يعاني من الالم جرعات زائدة من مسكنات الألم هو طلب المزيد من الاهتمام من قبل الكادر العمل	4
			يبقى ألم الأطفال عندما لا يتم تشخيصه بالشكل الكافي ، ولا معالجته بشكل جيد ، وله عواقب جسدية ونفسية ومالية كبيرة.	5
			يُفضل إعطاء مسكنات الألم (Narcotics) وفقًا لجدول منتظم بدلاً من جدول (PRN) حسب الحاجة للسيطرة على الالم المستمر PRN= حسب الحاجة	6
			يعتبر إيبوبروفين وغيره من مضادات الالتهاب غير الستيرويدية من المسكنات الفعالة للألم الخفيف إلى المتوسط.	7
			ان توفير الراحة وتغيير الوضع والتدليك يعمل على تقليل توتر العضلات والذي بدوره يمكن أن يقلل الألم.	8
			تشتيت انتباه الأطفال باستخدام الموسيقى أو رواية القصص أثناء الإجراء التداخلي يساعد على تقليل ألم الأطفال	9
			الطرائق غير الدوائية (الموسيقى, التخيل) تجعل الألم أكثر تحملاً وتمنح الأطفال إحساسًا أكبر بالسيطرة على الحالة المؤلمة	10
			تقييم وتوثيق الألم مهم ان يكون بشكل متكرر لدى المرضى القادرين على التواصل	11
			الحكم الأكثر دقة على شدة الالم يكون من المريض نفسه	12
			عدم وجود تعبير عن الألم لا يعني عدم وجود الألم	13
			زيادة متطلبات المسكنات علامات على أن المريض أصبح مدمنًا للمسكنات(narcotics)	14

			البنود	الرقم
			الأطفال بحاجة إلى مراقبة مستمرة للسيطرة على آلامهم	15
			الحقن العضلي هو أفضل طريقة لتسكين الآلام	16
			تقييم الألم بشكل متكرر يعتبر مؤشر على فعالية وكفاءة العلاج	17
			يجب ان يكون الآباء حاضرين أثناء الإجراءات المؤلمة	18
			بعد الجرعة الأولية الموص بها من المسكن الأفيوني (Opoid)، يجب تعديل الجرعات اللاحقة وفقًا لـ استجابة المريض الفردية.	19
			غالبًا ما يحتاج مرضى الأطفال الذين يعانون من آلام مزمنة شديدة جرعات أعلى من مسكنات الألم من مرضى الآلام الحادة.	20
			دائما يكون المرض هوه سبب الألم عند الأطفال	21
			الطريقة الموص بها لإعطاء المسكنات الأفيونية(المخدر) للأطفال الذين يعانون من آلام مستمرة هو طريقة الحقن الوريدي	22
			نظرا لعدم اكتمال نمو الجهاز العصبي عند الأطفال الذين اعمارهم اقل السنتين لذلك يكون الإحساس بالألم لديهم قليل	23
			ينام الأطفال على الرغم من الألم الشديد	24
			المدة المعتادة لبقاء مفعول المورفين عن طريق الحقن الوريدي هي من 4-5 ساعات.	25
			نادرًا ما يحدث تثبيط الجهاز التنفسي(هبوط معدل التنفس) لدى الأطفال الذين يتلقون جرعات منتظمة من المسكنات (المواد الأفيونية) على مدى شهور	26
			الأطفال اقل من 6 اشهر لا يمكنهم تحمل مسكنات الألم مثل المواد الافيونية (opioid)	27
			لا يمكن للأطفال الذين تقل أعمارهم عن 8 سنوات الافصاح عن الوالدين في تقييم شدة الألم عند الألم بشكل موثوق ، لذا يجب على الأطفال	28

القسم الثاني (B): اتجاهات فيما يتعلق بعلاج الألم

يرجى وضع (✔) في العمود الذي اخترته.

لا اوافق (1)	محايد (2)	اوافق (3)	البنود	الرقم
			ظهور الألم في سلوك الطفل	1
			الطفل الذي يمكن أن يشتت انتباهه عن الألم عادة لا يعاني من ألم شديد	2
			تعتبر التداخلات غير الدوائية فعالة للغاية بالنسبة للألم الخفيف إلى المتوسط وليس الألم الشديد.	3

				الأطفال المتواجدين داخل الردهات الباطنية في المستشفيات لا يعانون من الالم بنفس الشدة التي يعاني منها الاطفال في الردهات الجراحية	4
				استخدام أدوات تقييم الألم تجعل العناية التمريضية أكثر تعقيدًا واستهلاكا للوقت اكثر من انشطة الردهات الأخرى.	5
				الطفل الذي يشكو من الألم في كثير من الأحيان ، سيسعى لجذب اهتمام الكادر.	6
				تجربة الممرضين الشخصية مع الألم تؤثر على الطريقة التي يعالج بها الممرض الألم عند الأطفال.	7
				التدريب الذي يتلقاه الممرض حول معالجة الألم يكفي لتمكين الممرض من تقديم عناية للألم بصورة فعالة	8
				ان الإجراءات القانونية المطلوبة للحصول على مسكنات الالم (narcotics) واعطائها تؤدي الى صعوبة تقديم علاج فعال للألم.	9
				الممرضين هم أفضل من يحكمون على شدة الألم لدى المريض لأنهم يقضون 24 ساعة مع المريض.	10
				الأطفال الذين يعانون من امراض باطنية تكون شدة الألم لديهم نفس شدة الألم عند الأطفال الذين يخضعون لعمليات جراحية	11
				بما ان الأطفال لا يملكون معلومات صحية لا يمكنهم تقديم تقرير موثوق عن آلامهم.	12
				دعم أسرة الطفل ضروري لتخفيف آلامهم.	13
				قد ينكر الطفل الألم لتجنب الألم الناتج من حقن المسكن(Analgesia)بطريقة مؤلمة.	14
				الأطفال الرضع والاكبر سنا يعانون من نفس شدة الألم الذي يعاني منها الكبار	15
				يجب تشجيع الطفل الذي يعاني من الألم على تحمل أكبر قدر ممكن من الألم قبل اللجوء إلى إجراء لتخفيف الآلام	16
				تعتبر معالجة الألم وتسكين الآلام من الأولويات في علاج الأطفال	17
				للأطفال الحق في التقييم والعلاج المناسب لآلامهم	18
				أدق الحكم على شدة آلام الأطفال هو الممرض المباشر	19
				تقييم والسيطرة على آلام الطفل تؤدي إلى تحسين رضا الوالدين	20
				عدم تقييم ومعالجة ألم الطفل يؤثر على جسده وعقله على المدى البعيد	21
				التعب الجسدي والنفسي للممرض يمكن أن يؤثر على فعالية على تخفيف آلام الأطفال	22
				ضمان راحة المريض وتسكين الآلام من أهم مهام الممرضين	23
				الأدوات المتاحة لقياس الألم هي الأفضل لتحديد شدة الألم عند الأطفال	24
				عند إتمام الإجراءات اللازمة بالنسبة للمريض ، فإن استمرار الألم لا يسبب مشاكل	25
				القياس والسيطرة على آلام الطفل يؤثر على عملية الشفاء ويقلل من	26

					البنود	الرقم
					مدة البقاء في المستشفى	
					قياس وسيطرة على الألم في الأطفال يؤدي الى تحسين نوعية حياة الطفل	27
					استخدام الدواء الوهمي(إعطاء الأطفال الماء المعقم عن طريق الحقن) مهم في تحديد ما إذا كان ألم الطفل حقيقيًا.	28
					عندما يشكو الطفل من الألم ، فإن أفضل معالجة هي تقييم مدى صدق الألم.	29
					يجب الاعتماد على التغييرات الملحوظة في العلامات الحيوية للتحقق من أن الطفل يشكو من ألم شديد.	30
					يمكن للممرض التحاور مع الوالدين لتقييم ألم الطفل بشكل أفضل،	31
					يجب أن تكون درجة الألم موثقة كما هو الحال في توثيق العلامات الحيوية الأخرى	32
					التحادث مع الوالدين وتعليمهم، يلعب دورًا فعاًلا في تخفيف الألم	33
					تقييم وقياس ألم الطفل يجب اعتباره من العلامات الحيوية عند فحص الطفل	34
					استخدام أدوات تقييم الألم لتحديد ألم الطفل يؤدي إلى طريقة ملائمة لتخفيف الألم	35

القسم الثالث:(C) ممارسات الممرضين فيما يتعلق بعلاج الالم

يرجى النظر في السلوكيات التالية من حيث صلتها بممارستك. يجب أن تفكر في رد فعلك تجاه كل سلوك وأن تضع علامة على التصنيف وفقًا لذلك.

دائما	غالبا	أحياناً	قليلاً	ابدا	البنود	الرقم
5	4	3	2	1	بعد الجراحة ، تقوم بملاحظة تغيرًا في السلوك لدى الأطفال (مثل الاستيقاظ أو البكاء أو تقييد حركة الجسم أو الانسحاب أو الانفعالات أو عدم التحدث) من أجل تقييم الألم.	1
					تقوم بملاحظة التغيرات الفسيولوجية عند الأطفال (مثّل ضغط الدم ، ومعدل التنفس ، ومعدل ضربات القلب ، ودرجة الحرارة ، وتشبع الأكسجين) من أجل تقييم الألم.	2
					تقوم بتقييم آلام الأطفال على الأقل مرة واحدة خلال مناوبتك	3
					تستخدم مقياس الألم الذي يتم الإبلاغ عنه ذاتيًا (مثل المقياس التناظري البصري (VAS) ، ومقياس (FACE) لتقييم ألم الأطفال في الممارسة العملية	4
					تستخدم مقياس الألم السلوكي مثل (FLACC) الوجه والساقين والنشاط والبكاء والتوازن) لتقييم ألم الأطفال	5

						المحتوى	
						الصغار حسب العمر.	
						اعطي مسكنات الألم للأطفال حسب ارشادات الطبيب في الوقت المحدد	6
						تلاحظ الآثار الجانبية لأدوية الألم (مثل المورفين) بعد إعطائها للطفل	7
						تلاحظ الآثار الجانبية التالية مثل ضيق التنفس ، الشرى ، الغثيان ، القيء ، إذا كان الطفل يتلقى عقارًا من المواد الأفيونية (opioid).	8
						تعطي مسكنات الألم للأطفال حسب تقديرك.	9
						تقوم بإعطاء دواء إضافي للألم لتخفيف الألم عند الحاجة (PRN)	10
						تعيد تقييم آلام الأطفال بعد إعطاء مسكنات الألم من أجل تقييم فعالية مسكنات الألم	11
						استخدم بدائل غير دوائية لتشتيت انتباه الاطفال (مثل إعطائهم لعبة للعب ، والاستماع إلى الموسيقى ، ورواية القصص التي تستهويهم).	12
						تتحدث مع الأطفال بصوت ناعم لتهدئتهم عندما يعانون من الألم.	13
						تقوم بتوفير بيئة مناسبة هادئة وساكنه لمساعدة الأطفال على النوم بسهولة.	14
						تنصح الآباء وتمنحهم فرصًا للمساعدة في تقليل آلام أطفالهم.	15
						اشرك أحد الوالدين في تقييم ألم أطفالهم (مثل سؤال الأطفال عما إذا كان يعاني من الألم باستخدام كلمات ولغة مألوفة).	16
						بعد الجراحة ، تحرص على توفير وضعية مريحة للمساعدة في تخفيف آلام الأطفال.	17
						تعليم الأطفال بإبلاغ الممرض في حالة شعورهم بالألم	18
						تسأل الأطفال وتساعدهم في اسناد المناطق المؤلمة عند التحرك أو السعال بعد الجراحة.	19
						أناقش مع زملائي طرق تخفيف كرب الأطفال.	20
						أفكر في تهيئة الجداول الزمنية للإجراءات و طرق تقديم التدخلات للتحسين راحة الاطفال المرضى.	21
						اسأل عن الألم بانتظام ؛ اقييم الألم بشكل منهجي	22
						أنت تقوم بإعطاء حقن المخدرات)المسكنات(تحت إشراف طبي	23

القسم الرابع(D): العوامل المؤثرة على علاج الالم

يرجى وضع (✔) في العمود الذي اخترته.

كلا	نعم	البنود	الرقم
		العوامل المتعلقة بالمؤسسة الصحية(أ)	
		عدم التعاون بين الكادر الطبي والتمريضي يؤثر على قدرتك على إدارة الألم عند الاطفال	1
		قلة اعداد الكادر التمريضي يوثر على قدرتك على علاج الم الأطفال بشكل مثالي	2
		هل توجد أي معايير أو بروتوكولات لمعالجة الألم في المستشفى التي تعمل بها؟	3
		هل توجد أي أداة قياسية لتقييم الألم في المستشفى التي تعمل بها؟	4
		عبء العمل في التمريض يؤثر على قدرتك على معالجة آلام الأطفال	5
		عدم توفر المستلزمات الضرورية لمعالجة الألم يوثر على قدرتك في السيطرة على ألم الأطفال	6
		عدم وجود مكان مخصص لتدوين الألم يوثر على قدرتك على معالجة ألم الأطفال	7
		التواصل السيئ حول أولويات تقييم الألم في الردهة يؤثر على قدرتك على معالجة ألم الأطفال	8
		تؤثر جرعة المسكنات غير الكافية على قدرتك على التحكم في ألم الأطفال	9
		مسكنات الالم الأساسية متوفرة في المستشفى (مثل المواد الأفيونية ومضادات الالتهاب غير الستيرويدية) (opioid, NSAIDs)	10
		العوامل المتعلقة بالممرضين(ب)	
		هل هناك محتويات للتعامل مع آلام الأطفال مدرجة في منهج التمريض عندما درست ؟	1
		هل حصلت على أي تعليم إضافي (تدريب) يتعلق بمعالجة آلام الأطفال بعد التخرج؟	2
		هل قرأت أي إرشادات لمعالجة آلام الأطفال (مثلا عن طريق النت او المكتبة التي في المستشفى)؟	3
		نقص التدريب يوثر على قدرتك على معالجة ألم الأطفال	4

		قلة المعرفة بالمسكنات يوثر على قدرتك على معالجة آلام الأطفال	5
		قلة إعطاء الأولوية لمعالجة الألم من قبل كادر الردهة يوثر على قدرتك في معالجة ألم عند الأطفال	6
		يؤثر المسكن(sedation) الذي يتداخل في تقييم الألم على قدرتك على معالجة ألم الأطفال	7
		التوثيق السيئ لتقييم الألم وعلاجه يوثر على قدرتك على معالجة ألم الأطفال	8
		العوامل المتعلقة بالآباء(ت)	
		عدم رغبة الاباء بتلقي أطفالهم الادوية المسكنة للآلام يؤثر على قدرتك على معالجة الم الأطفال بشكل مثالي	1
		قلق الآباء بشأن الآثار الجانبية للأدوية المسكنة للألم يؤثر على قدرتك على إدارة ألم الأطفال بشكل مثالي	2
		قلق الاباء من أن يصبح أطفالهم مدمنين بسبب الادوية المسكنة للألم يؤثر على قدرتك على إدارة آلام الأطفال	3
		العوامل المتعلقة بالأطفال)(ت	
		حالة الطفل الغير مستقرة(مثلا عدم استقرار الدورة الدموية) تؤثر على قدرتك على معالجة آلام الأطفال	1
		عدم قدرة المريض على التواصل يؤثر على قدرتك على معالجة ألم الأطفال	2
		عدم تعاون الأطفال في معالجة الألم يوثر على المعالجة الصحيحة للألم	3
		تردد الأطفال عن اخذ مسكنات الألم يوثر على قدرتك على معالجة الألم عند الأطفال	4
		تردد الأطفال بعدم الإفصاح عن آلامهم يوثر على قدرتك على معالجة الألم بشكل مثالي	5
		العوامل المتعلقة بالثقافة والمعتقدات(ح)	
		تؤثر المعتقدات الشعبية على قدرتك على معالجة الألم عند الأطفال بشكل جيد ؟	1

		اعتقاد الآباء أنه يجب إعطاء أقل قدر ممكن من المسكنات يؤثر على قدرتك على إدارة ألم الأطفال	2

		هل تعتقد أن وجود إرشادات عامة لمعالجة الألم يحسن جودة الرعاية؟	3

Appendix D

Panel of expert

Table of expert

مكان العمل	سنين الخبرة	الاختصاص	اللقب العلمي	اسم الخبير	ت
جامعة بغداد/كلية التمريض	40	تمريض الاطفال	استاذ	د. عفيفة رضا عزيز	1.
جامعة بابل / كلية التمريض	36	تمريض صحة الأسرة والمجتمع	استاذ	د. سلمى كاظم جهاد	2.
جامعة بابل / كلية التمريض	36	تمريض الصحة النفسية والعقلية	استاذ	د.عبد المهدي عبد الرضا	3.
جامعة بابل/ كلية التمريض	35	تمريض صحة الأسرة والمجتمع	استاذ	د. امين عجيل الياسري	4.
جامعة بغداد / كلية التمريض	35	تمريض بالغين	استاذ	د. حسين هادي عطية	5.
جامعة الفرات الأوسط التقنية/ النجف	35	تمريض الام والوليد	استاذ	د. شكرية شدهان جياد	6.
جامعة بابل / كلية التمريض	30	تمريض بالغين	استاذ	د. سحر ادهم علي	7.
جامعة بابل / كلية التمريض	29	تمريض صحة الأسرة والمجتمع	استاذ	د. حسين جاسم محمد	8.
جامعة بغداد / كلية التمريض	26	تمريض صحة الأسرة والمجتمع	استاذ	د. هالة سعدي عبد الواحد	9.
جامعة بغداد / كلية التمريض	21	تمريض الاطفال	استاذ	د. ختام مطشر حطاب	10.
جامعة كربلاء/كلية التمريض	21	تمريض الاطفال	استاذ	د. خميس بندر عبيد	11.
جامعة الكوفة/ كلية التمريض	20	تمريض الصحة النفسية والعقلية	استاذ مساعد	د. حيدر حمزة الحدراوي	12.
جامعة بغداد / كلية التمريض	13	تمريض الاطفال	أستاذ مساعد	د. زيد وحيد عاجل	13.
جامعة ذي قار/كلية التمريض	13	تمريض الاطفال	استاذ مساعد	احمد عبدالله عبد الحسيناوي	14.
جامعة بغداد / كلية التمريض	10	تمريض بالغين	استاذ مساعد	د. صادق عبد الحسين حسن	15.

العدد : ٦٧٢٤

التاريخ : ١١/ ١٥

Ref. No :

Date: /   /

جامعة بابل/ كلية التمريض

مكتب السيد معاون العميد للشؤون العلمية المحترم

م / أعادة رسالة

تحية طيبة :

نعيـد إلـيكم اطروحـة طالـب الدراسـات العليـا / الـدكتوراه (محمد طالـب عبـد حمـادي) بعـد تقويمهـا لغويـاً مـن قبـل (أ.د. رعـد كـريم عبـد عـون) مـن قسـم اللغـة الانكليزيـة فـي كليتنـا، وقد ثبت الملاحظات على متن الرسالة يرجى من الباحث الالتزام بها .

*** مع الاحترام ***

أ.د. اسامة كاظم عمران
معاون العميد للشؤون العلمية
والدراسات العليا

نسخة منه إلى //
- الدراسات العليا .
- الصادرة

// سارة //

University of Babylon
College of Nursing

وزارة التعليم العالي والبحث العلمي

جَامِعَةُ بَابِلَ
كلية ودلقلنمولآنيتضية

الى /جامعة بابل / كلية التربية للعلوم الانسانية / مكتب السيد العميد
م/ مقوم لغوي

تحية طيبة :

يرجى التفضل بتحديد عضو هيئة تدريس في كليتكم لغرض تقويم رسالة الدكتوراه للطالب
(محمد طالب عبد حمادي) والموسومة ب

العوامـــل المـــؤثرة فـــي معـــارف ، اتجاهـــات وممارســـات الممرضـــين المتعلقـــة
بمعالجة الألم للأطفال الراقدين في مستشفيات محافظة بابل .

**Factors Influencing Knowledge, Attitudes , and Practices of Nurses Pain
Management of Hospitalized Children in Babylon Province .**

مع الاحترام ...

أ.د. امين عجيل ياسر الياسري
العميد
٢٠٢٢/٤/

المستخلص:

الأطفال في المستشفيات يعانون من آلام متوسطة إلى حادة أو مزمنة ، مما يقلل من راحتهم ويصبح مشكلة صحية عالمية.

أجريت دراسة وصفية مستعرضة طوال المدة (21 ايلول 2020 إلى 2 حزيران 2022) من اجل تقييم معارف الممرضين ، وتوجهاتهم ، وممارساتهم المتعلقة بمعالجة الألم للأطفال الراقدين في المستشفى ، وتقييم العلاقة بين المعارف والتوجهات والممارسات بين الممرضين ، وتحديد العوامل التي تؤثر على معارف وتوجهات وممارسات الممرضين فيما يتعلق بمعالجة الألم ، بالإضافة إلى تحديد العلاقة بين الخصائص الديموغرافية للعينة والمستوى التعليمي ، وتوجهات وممارسات الممرضين فيما يتعلق بمعالجة آلام الأطفال في المستشفى.

شملت عينة الدراسة (300) ممرض تم اختيارهم باستخدام عينة غير احتمالية (غرضية) من ستة مستشفيات في محافظة بابل. ,وجمعت البيانات من خلال استخدام الإدارة الذاتية .تحققت مصداقية محتوى الأداة من قبل لجنة من الخبراء ، في حين تم التحقق من موثوقية الاستبانة من خلال موثوقية الاتساق الداخلي (موثوقية ألفا كرونباخ) وتحليلها إلكترونيًا بواسطة تطبيق(SPSS) .

أشارت نتائج الدراسة إلى أن اكثر من نصف الممرضين كان لديهم القليل من المعرفة المتعلقة بمعالجة الألم للأطفال في المستشفيات، وان الممرضين لديهم مستوى منخفض من الممارسات، و هناك علاقة ذات دلالة إحصائية بين معارف الممرضين والجنس ، وأن هناك علاقة كبيرة إيجابية ذات دلالة إحصائية بين معارف الممرضين وتوجهاتهم ؛ والمعارف و الممارسات بقيمة.

خلصت الدراسة إلى أن معظم الممرضين لديهم ممارسات ضعيفة فيما يتعلق بمعالجة آلام الأطفال. وان الجنس ، ومكان العمل ، والخبرة في ردهات الأطفال ، ومستوى التعليم ، والدورة التدريبية لهم تأثير على معارف الممرضين. أثر مستوى تعليم الممرضين، والجنس ، ومكان العمل ، والدورات التدريبية ، وسنوات الخبرة في المستشفيات على ممارسات الممرضين.

أوصت الدراسة أن يكون تخصيص ميزانيات لتدريب الممرضين على معالجة الألم لتحسين جودة الرعاية التمريضية في كيفية التعامل مع الالم ، مما يؤدي إلى تحسين جودة حياة المرضى الذين يعانون من الألم ، وتنظيم ورش عمل تدريبية للممرضين من كافة المستويات ، والتي تركز على كيفية التعامل مع الأطفال من مختلف الأعمار والذين يعانون من الألم ، بدءاً من تقييمه إلى السيطرة عليه وعلاجه.

العوامل المؤثرة في معارف، اتجاهات، وممارسات الممرضين المتعلقة بمعالجة الألم للأطفال الراقدين في مستشفيات محافظة بابل

اطروحة مقدمة الــى
مجلــس كليــة التمريــض

جزءا من متطلبات نيل درجة الدكتوراه فلسفة في التمريض

تقـدّم بها
محمد طالب عبد حمادي

بإشـــــراف

الأستــــاذ المساعد

الدكتورة نهاد محمد قاسم الدوري